PAPER TRADE JOURNAL
Title Reg. U. S. Pat. Off.

Vol. 117, No. 13 Thursday, September 23, 1943 Price Ten Cents

Open Bids for U. S. Printing Office Paper

Forty Firms Submit Proposal for 79,630,000 Pounds of Paper for Three Months Period Beginning October 1—Joint-Congressional Printing Committee to Meet September 27 to Make Awards.

WASHINGTON, D. C., September 21, 1943—Forty firms yesterday submitted bids to the Joint Congressional Committee on Printing for furnishing 79,630,000 pounds of paper for use of the Government Printing Office for the three-month period beginning October 1. Bids received were surrounded by various conditions with especial reference to amounts to be furnished. The Joint Committee will meet on September 27 to consider making awards on the bids received yesterday.

Bids received were as follows:

Newsprint

No. 1—2,500,000 lbs., 24x36—64; rolls, 19, 24, 36 and 48 ins. wide (3-inch fiber cores, weight of cores and wrappers shall be included in net weight).

Marquette Paper Corp. (600,000 lbs. only) 2.90c

Telephone Book News

No. 2—200,000 lbs., 24x36—45; rolls, 28 and 38 ins. wide (3-inch fiber cores). (Weight of cores and wrappers shall be included in the net weight.)

Cauthorne Paper Co. 5.25c

Machine-Finish Book

No. 3—300,000 lbs., 25x38—70; flat, cut 22½x31, and 31¼x45½ in.

No bids

No. 4—600,000 lbs., 25x38—70; flat, cut 24x38, and 38x48 ins.

Barton, Duer & Koch Paper Co... 7.90c

No. 5—600,000 lbs., 25x38—70; flat cut 24x38, and 38x48 ins.

Barton, Duer & Koch Paper Co... 7.90c

No. 6—300,000 lbs., 25x38—70; rolls, 28½ ins. wide (3-inch fiber cores).

Walker Goulard Plehn Co. (100,000 lbs. only) 7.82c
Mudge Paper Co. (300,000 lbs. only) 7.59c
Marquette Paper Corp. 7.53c

No. 7—700,000 lbs., 25x38—70; rolls, 19 and 38 ins. wide (3-inch fiber cores).

Paper Corp. of U.S. 7.23c
Barton, Duer & Koch Paper Co... 7.50c
Frank Parsons Paper Co. 7.50c
Mudge Paper Co. (350,000 lbs. only) 7.59c
Marquette Paper Corp. 7.53c
Bermingham & Prosser Co. (100,000 lbs. only) 7.82c

No. 8—700,000 lbs., 25x38—70; rolls, 19 and 38 ins. wide (3-inch fiber cores).

Central Ohio Paper Co. (300,000 lbs. only) 7.53c
Paper Corp. of U. S. 7.21c
Barton, Duer & Koch Paper Co... 7.45c
Butler Co. (200,000 lbs. only).... 7.82c
Mudge Paper Co. (350,000 lbs. only) 7.59c
Marquette Paper Corp. 7.50c

No. 9—300,000 lbs., 25x38—70; rolls, 24, 36, and 48 ins. wide (3-inch fiber cores).

Central Ohio Paper Co. 7.53c
Paper Corp. of U. S. 7.29c
Barton, Duer & Koch Paper Co... 7.50c
Mudge Paper Co. (300,000 lbs. only) 7.59c

No. 10—300,000 lbs., 25x38—90; flat, cut 38x48 and 41x52 ins.

Swigart Paper Co. (100,000 lbs. only) 7.00c
Barton, Duer & Koch Paper Co... 6.90c
Stanford Paper Co. 6.94c

Machine-Finish Book End Paper

No. 18—60,000 lbs., for waste leaves; flat, cut 25x38—160; the grain to run the 38-inch way.

Central Ohio Paper Co. 7.42c
Wilcox-Walter-Furlong Paper Co.. 7.40c

Offset Book

No. 19—2,000,000 lbs., 25x38—80; flat, cut 38x48 ins., the grain to run lengthwise of the sheet.

Central Ohio Paper Co. (150,000 lbs. only) 8.53c
Paper Corp. of U. S. (500,000 lbs. only) 8.14c
Aetna Paper Co. (200,000 lbs. only) 8.68c
Marquette Paper Corp. (Maximum 1,200,000 lbs. Lots 19, 20, 21, 151, 152 and 153) 8.95c

No. 20—20,000 lbs., 25x38—90; flat, cut 34x44 ins., the grain to run lengthwise of the sheet.

Paper Corp. of U. S. 7.61c
Aetna Paper Co. 8.12c
Marquette Paper Corp. (Maximum 1,200,000 lbs. Lots 19, 20, 21, 151, 152 and 153) 8.38c

No. 21—2,000,000 lbs., 25x38—100 and 120; flat, cut 38x48 ins., grain to run lengthwise of the sheet.

Paper Corp. of U.S. (500,000 lbs. only) 7.46c
R. P. Andrews Paper Co. (500,000 lbs. only) 7.49c
Aetna Paper Co. (100,000 lbs. only) 7.56c
Whitaker Paper Co. (400,000 lbs. only) 7.42c
Marquette Paper Corp. (Maximum 1,200,000 lbs. Lots 19, 20, 21, 151, 152 and 153) 7.80c

Antique Book

No. 22—100,000 lbs., 25x38—100; flat, cut 38x50 ins.

Central Ohio Paper Co. 7.18c
Paper Corp. of U.S. 7.09c
Wilcox-Walter-Furlong Paper Co. 7.20c

Lightweight Machine Finish Book

No. 23—40,000 lbs., 25x38—60; flat, cut 38x48 ins.

Paper Corp. of U.S. 8.55c
Bermingham & Prosser Co. 8.94c

50 Per Cent Lightweight Machine-Finish Book

No. 24—50,00 lbs., 25x38—60; flat, cut 38x48 ins. Min. order 10,000 lbs.

Paper Corp. of U.S. 15.57c
Old Dominion Paper Co. 16.46c
Bermingham & Prosser Co. 15.94c

50 Per Cent Antique Book

No. 26—120,000 lbs., 25x38—80; flat, cut 38x48 ins.

Old Dominion Paper Co. 12.56c

No. 27—30,000 lbs., 25x38—80; flat, cut 22¾x31½ ins.

Old Dominion Paper Co. 12.56c

75 Per cent Laid Antique Book

No. 29—15,000 lbs., 25x38—140; flat, cut 24x38 ins.; the laid marks to run the 24-inch direction of the sheet; the grain and chain marks to run lengthwise of the sheet.

Chicago Paper Co. 16.75c
Paper Corp. of U.S. 16.58c
R. P. Andrews Paper Co. 15.77c

Supercalendered Book

No. 33—700,000 lbs., 25x38—90; flat, cut 28½x48, 31¼x45½, 38x48, and 39x50 ins.

No bids

No. 34—100,000 lbs., 25x38—100; flat, cut 38x48 ins.

No bids

No. 35—1,500,000 lbs., 25x38—90;

(Continued on page 14)

Newsprint Cut 5 Per Cent Next Month

Less Newsprint for 1944 Seen By Chairman Nelson as Consumption Trend Leads Supply—Reduction of Inventories Appears Inadequate —More Pulpwood Must Be Cut to Solve Acute Situation.

WASHINGTON, Sept. 20, 1943—The War Production Board announced today a 5% cut in newspapers' consumption of newsprint on October 1 and told publishers that "a further, perhaps far deeper" curtailment was inevitable next year. Donald M. Nelson, WPB chairman, said that even with the new fourth-quarter slash, consumption of newsprint in that period would exceed production by 94,000 tons, or about 10%.

In a report to Representative Boren, chairman of the House subcommittee investigating newsprint, Mr. Nelson said the WPB had decided to hold the curtailment to 5% in accordance with the newspaper industry's wish. But he warned that by using up its reserve supplies now, the industry must run the risk of more drastic cuts next year.

WPB Agrees with Committee

The Newspaper Industry Advisory Committee recommended September 2 that the curtailment be limited to 5% on a sliding-scale basis, with larger papers suffering a proportionately greater share of the curtailment. The newsprint report to Mr. Boren was the first disclosure that the WPB had concurred in this.

"It is clear," Mr. Nelson's report said, "that there will be less newsprint in 1944 than in 1943. With these facts before them, newspaper publishers had the alternative of: (a) budgeting their consumption immediately to provide for a gradual adjustment to the diminished supply or (b) consuming their reserves more quickly and facing a deeper cut later on. They have recommended the second alternative.

Canada to Supply 210,000 Tons Monthly

Mr. Nelson announced simultaneously that Donald Gordon, chairman of the Canadian Wartime Prices and Trade Board, had agreed to continue deliveries of newsprint by Canadian mills to United States consumers at the rate of 210,000 tons a month during the fourth quarter. This was promised at Mr. Nelson's request, even though Canadian figures indicated that the Dominion was not cutting pulp wood at a rate which would yield 210,000 tons monthly without curtailing other essential uses.

Barring unforeseen developments, United States newsprint mills would produce about 200,000 tons in the fourth quarter, Mr. Nelson said, and added:

Wood Supply Off 38.8 Per Cent

"However, this rate of production cannot be continued beyond 1943. Receipts of wood by the United States newsprint mills during the first half of 1943 were reported as 38.6% less than receipts during the same portion of 1942. Pulp wood inventories have dropped substantially since last year.

"Manpower shortages are chiefly responsible for the decline in production. Negotiations are in progress with the War Manpower Commission in order to prevent further migration of woods labor.

"The use of war prisoners and imported seasonal workers is being given consideration. A committee of newspaper publishers and pulp producers, in cooperation with the WPB, is sponsoring a campaign to encourage farmers and other persons to devote at least a part of their time to wood cutting."

Consumption Trend Above Supply

At this country's present rate of consumption, fourth-quarter newsprint requirements would be about 1,006,680 tons, of which 843,680 tons would be used by newspapers. With the 5% reduction in effect, consumption would amount to 964,680 tons, or 94,000 tons more than the supply, Mr. Nelson said. The publishers' committee felt the deficit could safely be met by reducing inventory stocks in the hands of newspapers.

The reduction of inventories which would result, Mr. Nelson said, would leave about 300,000 tons in newspapers' hands at the end of this year, compared with 479,349 tons on Dec. 31, 1942.

Dalemar Paper Corp. Buys Lodi Plant

The Dalemar Paper Corporation has purchased the plant and equipment of the Paper Products Manufacturing Company at Lodi, N. J. and will continue to manufacture waxed paper of all kinds. The company is amply financed and will be able to handle new business. Its New York office is located at 1450 Broadway, New York, 18, N. Y. and the telephone number is CHickering 4-5460.

Hercules Starts Research Sales Div.

WILMINGTON, Del., September 7, 1943—Hercules Powder Company has announced the establishment of a Sales Research Division to investigate new markets for Hercules chemical products and to study the needs of industries served by the chemical company.

Dr. John H. Long will be in charge of the new division, P. W. Meyeringh, Hercules vice-president, said. He explained that the new division has resulted from Hercules' sales expansion in recent years into dozens of new industrial fields.

Dr. Long, a graduate of Johns Hopkins University, has been with Hercules for ten years, specializing on various technical problems involved in marketing Hercules products.

Index of Paper Shipments Down

WASHINGTON, D. C., September 22, 1943—July index of the value of paper manufacturers' shipments was 126 compared with 139 in June and 154 in July of last year, taking an average 1939 month at 100, according to the monthly industry survey of the Department of Commerce.

Also taking an average 1939 month at 100 the July index of the value of paper manufacturers' inventories was 152.7 compared with 149.7 in June and 132.9 in July of last year the survey shows.

Mills Institute Plant Instructor Training

Consolidated and Nekoosa-Edwards Companies Introduce Classes For Plant Executives To Meet Problems of Changing Personnel — Farmers Contract To Cut Pulpwood — Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., September 20, 1943—As a means of better meeting the problems of changing personnel under wartime conditions, The Wisconsin Department of Vocational Education is conducting classes for foremen, superintendents and management in a number of Wisconsin mills. The work is being conducted by Charles Pagnucco of Milwaukee, Wis., circuit foremanship trainer of the vocational department.

First classes of the series are now under way at the main mill of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis. There are two 2-hour classes daily at the mill, lasting five days. The same procedure will be followed at the Biron, Stevens Point and Appleton divisions of Consolidated, and also at the Nekoosa-Edwards Paper Company at its Nekoosa and Port Edwards divisions. A similar course will be put on at the Ahdawagam Paper Products Company at Wisconsin Rapids.

The project is called plant instructor training and is occasioned by the wartime turnover in personnel which draws off trained workers, replacing them with workers frequently new to the industrial scene, and others from a large variety of work experience.

Foremen will be helped to train these new hands in their technique quickly so production does not lag. The project also helps new workers adjust themselves to their jobs, fits them for advancement, and guards them against industrial accidents. A lot of psychology is injected to overcome the mental hazards of a new worker.

Waste Liquor Disposal Group Meets

A quarterly meeting of the technical division of the Wisconsin Sulphite Pulp Manufacturers' Committee on Waste Disposal was held September 14 at the Institute of Paper Chemistry, Appleton, Wis. Recent developments in the search for a disposal process for waste were reviewed, and the committee inspected the test plant now in operation at the Interlake division of the Consolidated Water Power and Paper Company at Appleton, where one process is being tried out. This is the fourth year of the committee's work.

Paper Industry Backs Bond Drive

Extensive cooperation is evident everywhere in the paper industry in the sale of bonds for the Third War Loan. The Nicolet Paper Company, De Pere, Wis., announced the purchase of $150,000 worth of bonds.

At the Whiting-Plover Paper Company, Stevens Point, Wis., 234 employees have invested an average of $70 each in war bonds, in addition to their regular payroll deductions. The total maturity value exceeds $16,000.

Farmers Contract to Cut Pulpwood

More than 100 farmers of Marinette County, Wis., have signed up to cut pulpwood this winter. They registered at a booth set up by the county pulpwood committee at the Marinette County fair. Numerous others unable to cut their own wood have offered it for sale if labor will be furnished. More than 20 additional signers indicated they would hire out as pulpwood cutters if needed.

The Marinette County board, which owns extensive stumpage, has voted to sell all marketable wood on its lands. Sales were set at a limit of $100 to each buyer, making it unnecessary to advertise for bids, and thus assuring more prompt action.

Wife of William C. Wing is Dead

The death is announced of Mrs. William C. Wing of Neenah, Wis., which occurred Friday morning, September 17. Until its sale several years ago, her husband was president of the Fox River Paper Company, Appleton, Wis. Included among the survivors is Lieut. William C. Wing, Jr., of the United States Naval Reserve, a son who also was formerly associated with the Fox River mill.

Appoints Newsprint Supply Advisers

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., September 22, 1943—To facilitate the handling of critical problems involving the shortage of newsprint and print paper, H. M. Bitner, Director of the Printing and Publishing Division, War Production Board, has appointed the following five new men as newspaper consultants. They have been granted leave by their several organizations to serve the Government.

W. J. Campbell, whose home is in Cincinnati, Ohio, is an auditor of the Scripps-Howard newspaper.

Edgar J. Woodward, a traveling representative of the Philadelphia Evening Bulletin, resides in East Lansdowne, Pa.

Emmett P. Kavanaugh is assistant business manager and secretary of the Sun papers in Baltimore, which is his home.

Joe D. Sullivan, vice-president of the Bowater Paper Company, lives in New York.

Ralph E. Neale is an administrative assistant of the News Syndicate Company, New York. His home is in Pelham Manor, N. Y.

One of the first tasks accomplished by this group of practical newspaper men was the issuance of a questionnaire to all daily newspapers to get basic data regarding newsprint deliveries, inventory and consumption for the current year. These questionnaires were sent out on September 10 and are due for return not later than September 23.

These men have volunteered their services to act as Consultants to the Director and other members of the staff of the Printing and Publishing Division. They will also advise and consult with representatives of the industry, other Divisions of the WPB, and Government Agencies on the overall problems of paper use.

Commission Reports on Labor Troubles

Canadian Mills Are Absolved of Blame For Late Strikes At Price Bros. and Lake St. John Mills—E. B. Eddy Becomes Professor of Cellulose Chemistry At McGill University — Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., September 20, 1943—The Royal Commission's report on the recent labor troubles in the paper mills of the Lake St. John district is emphatic and unequivocal in absolving the companies—Price Bros. Company and Lake St. John Power and Paper Company—from any blame for precipitating the strike and from any criticism for their attitude and actions in regard to the striking workers. The report finds the Price concern was "ever inspired by anxiety to respect the contracts to which it was a party, and cooperated loyally with the Government's efforts to put an end to the dispute." The Lake St. John firm is said to have "imitated" the other company in this respect.

The report shows that the Price Bros. strike resulted from a jurisdictional dispute between two unions and the demand of the Catholic Syndicate union for bargaining rights already held under contract by the A. F. of L. union. The Montreal Gazette comments that the circumstances surrounding the strike lend weight to the Commission's general findings that there is urgent need of legislative regulation of labor relations in the province, and for a judicial labor tribunal to interpret and apply such regulations.

F. C. Coburn Heads Brown Corp.

At a meeting of directors of Brown Corporation, held here Frederic G. Coburn, New York, was elected president; E. H. Maling, Berlin, N. H., vice-president and treasurer; William L. Campbell, Berlin, vice-president; W. L. Bennett, Quebec, assistant treasurer; R. W. Bowlen, Berlin, assistant treasurer; R. H. Marshall, Berlin, comptroller; Jean Paul St. Laurent, Quebec, secretary, and John W. Jordan, Berlin, assistant secretary.

The directors of the corporation are as follows: Robert Braun, Portland, Maine; Orton B. Brown, Berlin, N. H.; J. B. Challies, Montreal; Frederic C. Coburn, New York City; John J. Hagerty, Boston, Mass.; H. P. Kendall, Boston, Mass.; Laurence F. Whittemore, Pembroke, N. H.; Jean Paul St. Laurent, Quebec City, and George A. Morris, vice-president and general manager of Ogilvie Flour Mills.

The Brown Company has pulp mills at La Tuque, Que., with capacity for the production of 840,000 lbs. per 24 hours of bleached and unbleached kraft and specialty pulps.

New Professor for Paper Research

Dr. Clifford B. Purves, formerly of the Massachusetts Institute of Technology, has arrived in Montreal to take up his post as E. B. Eddy professor of industrial and cellulose chemistry at McGill University, in connection with the Pulp and Paper Research Institute. He succeeds Prof. Harold Hibbert, whose retirement became effective at the end of last month.

Dr. Purves was born in Scotland in 1902 and received both his baccalaureate and doctor's degree from St. Andrews University, where his career was marked with great distinction. After two years in the United States as holder of the Commonwealth Fund Fellowship, he returned to Aberdeen University as assistant to the late Prof. J. J. R. Macleod, but was later recalled to a position at the National Institute of Health in the United States. In 1936, he was appointed associate professor of organic chemistry at M.I.T. He is married and has four children.

In announcing the appointment of Dr. Purves, Dr. F. Cyril James, principal and vice chancellor of McGill, said:

"During the past 10 years, Dr. Purves has published many scientific papers based o nhis research investigations and has won a reputation that now places him very high in the ranks of organic chemists on this continent. He has moreover, maintained close contacts with those who are engaged in industrial research in the United States so that he is admirably qualified to play an important part in the development of the Pulp and Paper Research Institute with which the activities of the Eddy professor are intimately related. Some three years ago this Institute was reorganized by agreement between McGill University, the Dominion Government and the Canadian Pulp and Paper Association, with a view to improving the facilities for research in the field of industrial and cellulose chemistry, and it is hoped that the advent of Dr. Purves will enable us to move even more speedily forward toward the solution of the many problems that now confront us in this field."

Suggests Paper Mill for Tennessee

CHATTANOOGA, Tenn., September 13, 1942—Opinion that Tennessee's forests would support a wood pulp mill for the production of paper was expressed by J. O. Hazard, state forester, on his visit to Chattanooga last week. "There is a huge acreage of wooded lands adjacent to Tennessee River in the eastern part of the state and in the southern tier of counties," said Mr. Hazard. "The Tennessee Valley Authority's development program has created large reservoirs.

"These reservoirs are lined with woodlands covering a considerable area and water transportation which is now available would reduce the cost of getting the timber to a pulp mill located at Chattanooga or at some other point on the river.

"I believe that this state offers distinct possibilities for the development of a reasonable-sized pulp mill for the production of newsprint or other types of paper from pine and other woods. The first step by those interested in such a development would be a survey to determine just how much timber would be available on an annual basis.

"Such a survey would, of course, be necessary for use in interesting capital in making the necessary investment. Low-cost water transportation would be a big advantage that a mill would enjoy."

Government Agencies Are More Cooperative

Chicago Reports Paper Men In Midwest State WPB and OPA Now Working More Closely With Paper Industry — Paper Orders At High Mark—Discuss Shipments of Old Containers—Other News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., September 20, 1943—The paper market here is of the belief that the War Production Board and the Office of Price Administration are both working more closely with the industry now in full recognition of the underlying problems confronting the trade. Attention is concentrated on a number of things in addition to the almost impossible effort to keep up with the avalanche of orders. WPB's revised L-120 affecting the manufacturer in relation to bases, weights and sizes has had a direct effect on local sales outlets while MPR orders 449, 450 and 451 have been given close scrutiny as to the extent they alleviate some of the squeeze under which the industry is operating.

Reports indicate that the improvement in the price situation in groundwood specialties, books and fine papers with reference to ceiling limitations have been taken as at least a step in the right direction. The bond paper conservation program has found the OPA cooperating with the WPB edict to reduce from 20 to 16 pounds, in permitting price increases to compensate for the loss in production in the machines. The arrangement has been accepted as a fair betterment by those who have been interviewed here.

All mills are solidly booked on orders, concentrating on the pulp control and allocation procedure as the only salvation at this time. The waste paper industry expects a stimulus to its overall stocks later this month or in October when efforts will be made locally to speed up the waste paper drive.

Cooperate in Bag Conservation

Locally, the retail industry has been cooperating in furthering the economical use of paper bags as a patriotic and practical necessity. Local retail trade groups are advising retailers that they should curtail the use of small paper bags for individual purchases which are later to be placed in one large bag and the notice points out that since the manufacturing of paper bags is required to be reduced to 70 per cent of the base period, August 1, 1941 to March 31, 1942, grocers and other retailers using this type of bag cannot hope to escape some similar reduction in supply of bags available to them. The Retail Division of the Wholesalers and Retailers Branch of the War Food Administration has directed personal letters to national trade groups along the above line.

Discusses Fiberboard Shortage Problem

The fiberboard container industry will be interested to learn that a meeting was held in Chicago this week at which leading traffic executives are reported to have discussed the extent, if any, to which railroads should liberalize specifications covering fiberboard containers. Also up for discussion was the possibility of loss to the railroads in the form of greatly increased freight damage claims if such claims did result from such liberalization.

The widespread shortage of fiberboard containers as well as an acute shortage of chemical pulpwood were both factors in bringing about the discussion.

At present rules do not prohibit the movement of commodities in used fiberboard containers if the boxes otherwise meet specifications. However, the railroad view has been that fiberboard boxes are designed as single trip containers, even under normal manufacturing conditions. It is reported that the traffic men felt further liberalization through proposals to return empty containers to shippers will complicate the problem of moving merchandise without serious loss. It is said that while the railroads recognize the grave nature of the shortage, and sympathize with the paper industry, they do not believe that future liberalization of specifications should cause the carriers to bear the entire loss in goods that "is bound to occur."

Salesmen Assist TAPPI'S

The western division of the Salesmens Association of the Paper Industry will forego its usual luncheon on Monday of next week, September 20, to participate in the big general luncheon to be sponsored by TAPPI on Wednesday, September 22. Regular Monday sessions at the Hotel Sherman will be resumed on September 27 with the regular routine discussion which will include a resume of facts gathered during the TAPPI sessions. The Association expects to have two and possibly more special "guest speaker" meetings before the holidays and will soon arrive at a decision as to whether or not the annual Christmas party will be held.

Governor Appeals for More Pulpwood

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, September 19, 1943—In a proclamation emphasizing the serious effect of the shortage of pulpwood on the war effort, Gov. Thomas E. Dewey appealed today to all woodland farmers and wood cutters in the State to enlist in a victory pulpwood drive. He urged them to give at least three extra days to cutting pulpwood this fall.

Pulpwood is vital to the progress of the war, the Governor said, because of its widespread use in smokeless powder, paper board containers for shells, food and ammunition for the fighting forces, blood plasma kits, rayon and paper parachutes and other materials of war.

The present lag in production of pulpwood indicates a shortage of more than 2,500,000 cords under the minimum 13,000,000 cords needed for war and essential civilian requirements for 1943, he said.

"The newspapers of the nation again have responded to a patriotic challenge as they did in the scrap metal drive and are devoting their organized efforts to a campaign to overcome this pulpwood shortage," he added.

Michigan Superintendents Meet

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., September 20, 1943—The 1943-44 activities of the Michigan Division of the American Pulp and Paper Mill Superintendents Association started off on the evening of September 16 with the usual dinner meeting, forty-five members and guests being present. Chairman Al Perlick presided and expressed the satisfaction of the officers at the good attendance at the first meeting.

The election of officers resulted as follows: Chairman, Glen Sutton; first vice chairman, Ralph Atkins; second vice chairman, Walter F. Wolfe; secretary-treasurer, Joe Weber.

Through the courtesy of Forest Industries, Incorporated of Washington, D. C., a movie with sound effects was shown, the title of which was "Trees of Tomorrow." Reforestation and Managed Forest Projects that are being carried out in the west and south, and the new uses for wood and wood products that are being rapidly discovered, were the high spots of the film.

The guest speaker was George A. Hermann, vice president of the Hermann Manufacturing Company, who addressed the group on "Stock Preparation as applied by the Hermann Claflin Pulp Refiner," one of the products of his company. His talk was both interesting and instructive and held the attention of all present. At its conclusion a lively Forum was held at which Mr. Hermann ably answered all questions pertaining to the success of the refiner's installation and operation in the various mills.

A rising vote of thanks was tendered Mr. Hermann, and to the retiring officers for their concerted efforts which made their administration a success.

Those Present

Ralph Atkins, Lee Paper Company; W. H. Astle, Michigan Paper Company; Henry Bongirs, Sutherland Paper Company; R. L. Barton, Michigan Paper Company; Willard Barnhart and Kenneth Conrad, American Box Board Company; F. L. Chappell, Jr., Hercules Powder Company; E. T. A. Coughlin, Bryant Paper Company; A. W. Cole, Rex Paper Company; A. G. Dries, Hercules Powder Company; Jack Dickson, R. T. Vanderbilt Company; J. A. Dean, Michigan Paper Company; L. F. Fitzgerald and M. S. Fogerty, Michigan Paper Company; C. E. Gardner, Lee Paper Co.; F. M. Hodgemire, Hawthorne Paper Company; J. A. Heenan, Sutherland Paper Company; Henry Harrtman and Arthur Hanson, American Box Board Company; George A. Hermann, Hermann Manufacturing Company; E. Hays, Michigan Paper Company; Tom Hennessy, Otsego Falls Paper Company; R. W. Holden, Stowe-Woodward Company; C. P. Kirchen, Acme Cynamid Corporation; L. H. LaLiberte, Kalamazoo Vegetable Parchment Company; J. W. McClaren, National Starch Products; G. M. Markle, DuPont Company; E. G. Milham, Watervliet Paper Company; R. T. Mashburn, Hercules Powder Company; L. H. Mimms, Kalamazoo Paper Company; A. G. McDonald, Stern Hall Manufacturing Company; Al Perlick, Kalamazoo Vegetable Parchment Company; C. B. Rady, Sutherland Paper Company; Douglas Robbins, Douglas Robbins Company; R. B. Stewart, Kalamazoo Vegetable Parchment Company; Flen Sutton, Sutherland Paper Company; Homer E. Stafford, retired; C. "Baldy" Smith, Douglas Robbins Company; W. S. Taylor, American Cyanamid and Chemical Corporation; E. R. VanNatta, Western Board and Paper Company; Wm. Wessel, American Box Board Company; Joe Waber, Rex Paper Company; Arnold Weller, Sutherland Paper Company; Walter F. Wolfe, Mac-Sim-Bar Paper Company.

New Literature

New water developments and wartime economy are discussed in Technical Paper No. 82, issued by W. H. and L. D. Betz, consulting chemical engineers, Frankford, Philadelphia, Pa. It presents specifications of the quality of process water required in the manufacture of various grades of paper. A summary is included of recent important articles on the preservation and maintenance of equipment under corrosive conditions.

Variable speed transmission with built-in reducer, is described in Catalogue TR-432, issued by Reeves Pulley Company, Columbus, Ind. It discusses the merits of the company's new compact unit, available in a wide range of speeds and in capacities from 1 to 7½ h. p. The various sizes of transmission provide ratios of speed variations from 2:1 through 12:1, and reduction gears give ratios up to and including 6.9:1. Dimension diagrams are included.

Cranes and controlling crane hooks are described in Catalogue 213 issued by Manning, Maxwell & Moore, Inc., Muskegon, Mich. Shaw-Box standard cranes of several important types are discussed, including self-supporting full revolving jib cranes. Catalogue No. 214 covers the Shaw-Box Type "S" roller bearing electric traveling cranes. Bridge, trolley details and dimensions of various types of electric cranes are given. The folder on "Controlling Crane Hooks" presents the actual operation of a crane and should prove helpful in many mills which require the training of new crane operators among girls, women and older men.

Worm Gears are described in Leaflet E-1210, issued by the De Laval Steam Turbine Company, Trenton, N. J. It covers units for 3 and 3½ inch center distances. These gears are available for either top or bottom drive and in ratios from 3⅝ to 1 up to 60 to 1, and are intended particularly for the operation of low-power machinery, such as small mixers, dryers, conveyors, etc. The lower ratios can be used as speed-increasing gears where the maximum worm speed does not exceed 1750 r. p. m.

Electric vibrating equipment is discussed in Catalogue 750, issued by The Jeffrey Manufacturing Company, Columbus, Ohio. It covers the application of electric vibration, the principles of design and operation of the company's equipment and typical applications of capacity feeders, spreader feeders, batching feeders and special feeders. Electric feeders for heavy duty, constant weight feeders, vibrating conveyors, direct type coolers, vibrating screens and electrical controls for operating vibrating equipment. The catalogue also includes stackers, loaders and other industrial equipment.

Everett W. Jones Goes to Chicago

TROY, N. Y., September 20, 1943 — Everett W. Jones, former general operating superintendent of the John A. Manning Paper Company, Troy, has been named vice-president of the Modern Hospital Publishing Company, Chicago, it was announced last night. He will leave Troy October 1, and assume his new duties November 1.

During the last year, Mr. Jones was engaged in the organization of the hospitals division of the War Production Board which he will continue to serve, on part time basis, in the role of consultant.

As a member of the staff of the Chicago firm, Mr. Jones will concentrate on problems involving publication of several of the firm's books, among them Modern Hospital, Nation's Schools and Hospital Year Book. He also will be concerned with Latin-American publications.

At present, Mr. Jones also is administrator-on-leave from the Albany Hospital where he held the title of director and assistant secretary of the board of governors. He left Albany Hospital to organize the hospitals division of the WPB and his work in that department is now concluded.

During World War I, Mr. Jones served overseas with the Army Medical Corps, receiving his discharge in 1919 with rank of sergeant. During the summers of 1921, 1922, he served as engineer and inspector for the State Highway Commission, and in fall and winter months attended the University of Wisconsin from which he received the degree of B.S.E. in 1923. Upon graduation he was employed as an engineer in the development division of Western Electric Co.

In 1924 he was appointed chief engineer of the John A. Manning Paper Company, Troy, where in 1926 he was advanced to general operating superintendent. In 1933 and 1934 he engaged in special sales engineering and marketing geography for the Behr-Manning Corp. in addition to his regular duties at the paper mill.

New Industrial Thermometer

A new industrial thermometer with a plastic case front, yellow back, easy reading thermometer tubing and malleable iron back has recently been announced by the C. J. TAGliabue Manufacturing Company, of Brooklyn, N. Y.

By using a plastic case front, weight is reduced and an adequate substitute for metal is provided. The plastic case front is not affected by the temperatures to which the case is subjected under actual service conditions. Either the glass or the entire front can be replaced at nominal cost.

Yellow back lens front thermometer tubing is a great improvement over the white back type since the yellow background offers the best color contrast with the mercury. The tubing also is comparatively easy to produce and it involves no complicated construction of bore or lens.

Malleable iron has been found to be an entirely satisfactory substitute metal for the brass formerly used, and is fully protected against corrosion by a durable black finish.

Information on this new line of thermometers will be sent on request by the manufacturer.

Application of Plastics Expands

Further evidence of the widening range of application of plastics is seen in the announcement of the development and use of a new plastic protective coating known as "Plast-Anneal" by The Allen Corporation, Detroit, ventilation engineers and manufacturers of ventilating equipment.

According to B. K. Paget, Allen general sales manager, this "Plast-Anneal" coating has a minimum salt spray resistance five times greater than galvanizing and other advantages claimed for it include a true collodial suspension of color pigment, rust inhibitor, and plastic that insures a uniform distribution of covering and uniform thickness of durable surfaces.

Mr. Paget points out that this material is applied after fabrication, thus covering and protecting all surfaces and interstices of the various ventilating units built by the company. Anyone who has had experience with metal construction exposed to exterior weather conditions and to deteriorating elements held in suspension in air exhausted through ventilators will realize the value of this new plastic coating. Gone forever is the flaking of galvanized surfaces where they are bent; gone also are the incipient sources of rust where galvanized sheets have been cut.

A further advantage according to Paget is that the basic formula can be altered to produce an adequate protection for almost any requirement where atmospheric conditions present known concentrations of acid or alkaline solutions, the plastic coating can thus be tailor-made for the job.

AVAILABLE—SOON
A PROVEN EXECUTIVE
IN THE PAPER INDUSTRY

Twenty years of practical experience in paper mills and paper products manufacturing. In highly executive business management capacity now, but desire broader field with greater opportunities, preferably as general manager or Vice-president in charge of all operations.

Thoroughly familiar with tax procedures, finance, governmental operating and pricing regulations; handling labor (both union and otherwise), building up of competent executive personnel, merchandising, purchasing methods and production procedures in paper mills and in the making of allied products.

Definite limitations in present connection preclude doing the bigger job that I am equipped by experience to handle; otherwise a change would not be contemplated.

Draft exempt—under 50—with a practical viewpoint toward getting things done in spite of war time handicaps. Address Box 43-531, care Paper Trade Journal.

S-23

OPEN PAPER BIDS FOR U. S. PRINTING OFFICE

(Continued from page 7)

rolls, 28½ and 38 ins. wide (3-inch fiber cores).
R. P. Andrews Paper Co..... 7.09c
Mudge Paper Co. .....
(350,000 lbs. only) 7.35c

No. 36—1,500,000 lbs., 25x38—100; rolls, 28½ and 38 ins. wide (3-inch fiber cores).
Mudge Paper Co.....
(350,000 lbs. only) 6.84c

Machine-Coated Book

No. 37—1,000,000 lbs., 25x38—90; flat, cut 35x45, 38x48, and 39x50 ins.
Barton, Duer & Koch Paper Co...
(480,000 lbs. only) 6.30c

No. 38—300,000 lbs., 25x38—100 and 120; flat, cut 35x45, 38x48, and 39x50 ins.
Barton, Duer & Koch Paper Co... 5.87c

Coated Book

No. 41—500,000 lbs., 25x38—140; flat, cut 38x48, and 39x50 ins.; the grain to run lengthwise of the sheet.
Stanford Paper Co..... 8.88c
John F. Post, Inc.....
(250,000 lbs. only) 9.06c
Perkins-Goodwin Co. .....
(200,000 lbs. only) 9.15c

50 Per Cent Machine-Finish Lithograph

No. 43—40,000 lbs., 25x38—160; flat, cut 10½x16 ins., the grain to run lengthwise of the sheet.
Walker Goulard Plehn Co.....
(Not less than 5,000 to 10,000 lbs.) 15.50c
(Not less than 10,000 to 20,000 lbs.) 15.25c
(Not less than 20,000 to 40,000 lbs.) 15.00c
R. P. Andrews Paper Co..... 13.39c
Old Dominion Paper Co..... 12.87c

Ground Wood Mimeograph

No. 44—2,000,000 lbs., No. 36; flat, cut 32½x42½, and 38x48½ ins., grain as ordered.

Bulkley, Dunton & Co.....
(300,000 lbs. only) 5.75c
(300,000 lbs. only) 5.90c
Old Dominion Paper Co.....
(1,000,000 lbs. only) 5.3947c
Whitaker Paper Co.....
(600,000 lbs. only) 5.57c

Chemical Wood Mimeograph, White and Colored

No. 45—400,000 lbs., white, No. 36; flat, cut 32½x42½ and 38x48½ ins.; the grain to run as ordered.
Whitaker Paper Co..... 6.91c

No. 46—200,000 lbs., blue, buff, green, pink and yellow, No. 36; flat, cut 32½x42½ and 38x48½ ins.; the grain to run as ordered. Min. order, one color, 10,000 lbs.
Cauthorne Paper Co..... 8.25c

25 Per Cent Mimeograph

No. 47—400,000 lbs., No. 36; flat, cut 32½x42½, 34½x44, and 38x48½ ins.; the grain to run as ordered.
Aetna Paper Co..... 9.48c
Old Dominion Paper Co..... 9.78c

Blue U S M O Safety Writing

No. 48—300,000 lbs., No. 32; rolls, 22 ins. wide, 24 ins. in diameter (3-inch fiber cores).
R. P. Andrews Paper Co..... 12.83c
D. L. Ward Co.....
(150,000 lbs. only) 12.74c

U S M O Writing, White and Blue

No. 49—4,000 lbs., No. 32; rolls, 8½ inches wide, 24 ins. in diameter (3-inch fiber cores). Min. order either color, 2,000 lbs.
R. P. Andrews Paper Co. (white) 12.50c
(blue) 13.00c

Ground Wood Writing, White and Colored

No. 50—2,000,000 lbs. white, No. 32; flat, cut any size, min. width 32 ins., max. width 48 ins.
Stanford Paper Co. (Grade A1) 6.40c
(Grade B1) 5.90c
Marquette Paper Corp.....
(700,000 lbs. only) 6.40c

No. 51—4,000,000 lbs. white, No. 36; flat, cut any size, min. width 32 ins., max. width 48 ins.
Bulkley, Dunton & Co.....
(500,000 lbs. only) 6.25c
(500,000 lbs. only) 6.40c
Stanford Paper Co. (Grade A1) 6.40c
(Grade B1) 5.90c
Frank Parsons Paper Co... ...
(500,000 lbs. only) 6.40c
Old Dominion Paper Co.....
(500,000 lbs. only) 6.25c
(500,000 lbs. only) 6.40c
Bermingham & Prosser Co.....
(300,000 lbs. only) 6.25c
(300,000 lbs. only) 6.40c

No. 52—200,000 lbs. yellow, No. 36; flat, cut any size, min. width 32 ins., max. width 48 ins.
Frank Parsons Paper Co..... 6.65c
Old Dominion Paper Co..... 6.50c
6.60c
Bermingham & Prosser Co.....
(300,000 lbs. only) 6.50c
(300,000 lbs. only) 6.60c

Chemical Wood Writing, White and Colored

No. 55—4,000,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.
Barton, Duer & Koch Paper Co... 7.80c
Stanford Paper Co. .....
(600,000 lbs. only) 7.87c
Cauthorne Paper Co. .....
(600,000 lbs. only) 7.87c
Whitaker Paper Co.....
(2,500,000 lbs. maximum on lots 55, 57 and 58) 7.69c

No. 56—5,000,000 lbs., white No. 36; flat, cut any size, min. width 21 ins., max. width 48 ins.
Barton, Duer & Koch Paper Co... 7.25c
Stanford Paper Co.....
(600,000 lbs. only) 7.29c
Cauthorne Paper Co. .....
(600,000 lbs. only) 7.29c

No. 57—2,000,000 lbs., white, No. 32; rolls, min. width 16 ins., max. width 48 ins. (3-inch fiber cores).
R. P. Andrews Paper Co.....
(2,500,000 lbs. only) 7.19c
Barton, Duer & Koch Paper Co... 7.50c
Perkins-Goodwin Co. .....
(500,000 lbs. only) 7.60c
Whitaker Paper Co.....
(2,500,000 lbs. maximum on lots 55, 57 and 58) 6.95c

No. 58—2,000,000 lbs., white, No. 36; rolls, min. width 16 ins., max. width 48 ins. (3-inch fiber cores).
Central Ohio Paper Co.....
(50,000 lbs. only) 6.65c
Barton, Duer & Koch Paper Co... 7.00c
Perkins-Goodwin Co. .....
(500,000 lbs. only) 7.02c
Whitaker Paper Co.....
(2,500,000 lbs. maximum on lots 55, 57 and 58) 6.90c

No. 59—4,000,000 lbs., blue, buff, green, pink, salmon and yellow Nos. 32 and 36; flat, cut any size, min. width 21 ins., max. width 48 ins. Min. order, one color, 10,000 lbs.
No bids

No. 60—200,000 lbs., blue, buff, green, pink, salmon and yellow, Nos. 32 and 36; rolls, 32 and 38 ins. (3-inch fiber cores).
No bids

Lithograph-Finish Map

No. 63—20,000 lbs. Nos. 32 and 40 flat, cut any size. Min. width 22 ins. Maximum width 48 ins.
No bids

50 Per Cent Lithograph-Finish Map

No. 64—400,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 22 ins., max. width, 48 ins., the grain to run lengthwise of the sheet.
Aetna Paper Co. .....
(200,000 lbs. only) 15.48c

No. 65—200,000 lbs., Nos. 48 and 56; flat, cut in any size, min. width 22 ins., max. width 48 ins.; grain to run lengthwise of the sheet.
Stanford Paper Co. .....
(25,000 lbs. only) 15.50c
Virginia Paper Co. .....
(50,000 lbs. only) 15.20c

75 Per cent Lithograph-Finish Map

No. 66—150,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 24 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; ream markers to be omitted.
Paper Corp. of U. S. 17.32c
Barton, Duer & Koch Paper Co.
(75,000 lbs. only) 16.75c
Mudge Paper Co. .....
(50,000 lbs. only) 18.00c
(50,000 lbs. only) 17.50

No. 67—40,000 lbs., Nos. 48 and 56; flat, cut any size, min. width 30 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; ream markers to be omitted. Min. order, one substance, 5,000 lbs.
Paper Corp. of U. S. 17.32c
Mudge Paper Co. .....
(40,000 lbs. only) 17.25c
(40,000 lbs. only) 17.00c

50 Per Cent White Chart Lithograph-Finish

No. 68—4,000,000 lbs. No. 80; flat, cut any size, min. width 22 ins, max. width 46 ins.; packed in cases of 1,000 sheets each; the grain to run lengthwise of the sheet unless otherwise specified.
Franklin Research Co. .....
(2,000 lbs. only) 18.60c
Barton, Duer & Koch Paper Co.
(200,000 lbs. only) 18.80c
(150,000 lbs. only) 21.00c
Stanford Paper Co. .....
(50,000 lbs. only) 21.00c

100 Per Cent White Chart, Lithograph-Finish

No. 69—30,000 lbs., Nos. 83 and 96; flat, cut any size, min. width 22 ins., max. width 46 ins.; packed in cases of 1,000 sheets each; the grain to run lengthwise of the sheet unless otherwise specified.
Central Ohio Paper Co. 24.25c
Paper Corp. of U. S. 22.65c
Barton, Duer & Koch Paper Co. 21.85c

Chemical Wood Manifold, White and Colored

No. 71—1,000,000 lbs., white, No. 18; flat, cut 21x32, and 32x42 ins.; the grain to run 21-inch and 42-inch ways.
Cauthorne Paper Co. .....
(600,000 lbs. only) 9.96c
Graham Paper Co. 9.22c

No. 72—200,000 lbs. white, No. 18 rolls, 24 ins. wide. (3-inch fiber cores).
Bradner, Smith & Co. (less 3%) 9.02c

No. 73—400,000 lbs, blue, green, pink, and yellow, No. 18; flat, cut 21x32, 22x34, 28x34 and 32x42 ins.; the grain to run the 21-inch and 42-inch ways. Min. order, on color 5,000 lbs.

Bradner, Smith & Co. (less 3%) 10.05c

50 Per Cent Manifold, White and Colored

No. 75—80,000 lbs., white, No. 14; flat, cut 38x48 ins. Min. order, 5,000 lbs.

Marquette Paper Corp. 21.75c

No. 76—400,000 lbs., white, No. 18; flat, cut 21x32, 22x34, 28x34, and 32x42 ins.; the grain to run the 21-inch and 42-inch ways.

Barton, Duer & Koch Paper Co.
(40,000 lbs. only) 19.00c
Stanford Paper Co. .....
(40,000 lbs. only) 18.80c
(40,000 lbs. only) 19.30c
Old Dominion Paper Co. .....
(50,000 lbs. only) 18.494c
(50,000 lbs. only) 18.993c

No. 77—100,000 lbs., white, No. 18; rolls, 24 ins. wide (3-inch fiber cores).

Paper Corp. of U. S. 18.47c
Graham Paper Co. .....
(50,000 lbs. only) 18.85c

No. 78—300,000 lbs., blue, cherry, green, pink, salmon and yellow, No. 18; flat, cut 21x32, 22x34, and 28x34 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order, one color, 5,000 lbs.

Barton, Duer & Koch Paper Co.
(40,000 lbs. only) 19.90c
Old Dominion Paper Co. .....
(50,000 lbs. only) 19.244c
(50,000 lbs. only) 19.743c

100 Per Cent White Manifold

No. 84—60,000 lbs., No. 18; flat, cut 32x42 ins.; the grain to run the 42-inch way. Min. order 5,000 lbs.

Paper Corp. of U. S. 27.44c
R. P. Andrews Paper Co. 29.90c
Barton, Duer & Koch Paper Co. 27.35c
Old Dominion Paper Co.....
(30,000 lbs. only) 30.938c

50 Per Cent White Glazed Manifold

No. 85—200,000 lbs., No. 16; flat, cut 28x34 ins.; the grain to run the 28-inch way. Min. order 20,000 lbs.

R. P. Andrews Paper Co. .....
(40,000 lbs. only) 23.00c
Barton, Duer & Koch Paper Co. ..
(100,000 lbs. only) 20.85c
(100,000 lbs. only) 21.85c

Chemical Wood Bond, White and Colored

No. 101—500,000 lbs., white, No. 26; flat, cut any size, min. width 21 ins.; max. width 38 ins.

Eastern Corp. (150,000 lbs. only) 11.46c
Cauthorne Paper Co. .....
(200,000 lbs. only) 9.00c

No. 102—2,000,000 lbs., No. 36; flat, cut any size, min. width 21 ins.; max. width 38 ins.

Eastern Corp. .....
(1,300,000 lbs. only) 9.31c
Cauthorne Paper Co. .....
(400,000 lbs. only) 7.87c

No. 103—250,000 lbs., blue, buff, green, pink, salmon, and yellow, No. 26; flat, cut any size, min. width 21 ins., max. width 38 ins. Min. order, one color, 5,000 lbs.

Aetna Paper Co. 11.33c

25 Per Cent Bond, White and Colored

No. 105—300,000 lbs., white, No. 26; flat, cut any size, min. width 21 ins.; max. width 48 ins.

Central Ohio Paper Co. .....
(50,000 lbs. only) 14.45c
Aetna Paper Co. 15.72c
Whitaker Paper Co. 15.90c

No. 106—2,500,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Whitehead & Alligar Co. .....
(100,000 lbs. only) 14.35c
Central Ohio Paper Co. .....
(50,000 lbs. only) 14.35c
(50,000 lbs. only) 14.45c
Wilcox-Walter-Furlong Paper Co.
(100,000 lbs. only) 14.35c
R. P. Andrews Paper Co. .....
(50,000 lbs. only) 14.35c
Collins Mfg. Co. .....
(50,000 lbs. only) 13.50c
(50,000 lbs. only) 13.95c
(100,000 lbs. only) 14.25c
Barton, Duer & Koch Paper Co.
(250,000 lbs. only) 14.45c
Aetna Paper Co. .....
(500,000 lbs. only) 13.88c
Cauthorne Paper Co. .....
(100,000 lbs. only) 14.35c
Bradner, Smith & Co. .....
(50,000 lbs. only—less 3%) 14.69c
Whitaker Paper Co. .....
(500,000 lbs. only) 14.24c
Messinger Paper Co. .....
(100,000 lbs. only) 14.35c

No. 107—2,500,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Whitehead & Alligar Co. .....
(100,000 lbs. only) 14.35c
Central Ohio Paper Co. .....
(100,000 lbs. only) 14.45c
Ris Paper Co., Inc. .....
(100,000 lbs. only) 14.35c
McIntosh Paper Co. .....
(100,000 lbs. only) 14.35c
Wilcox-Walter-Furlong Paper Co.
(100,000 lbs. only) 14.35c
R. P. Andrews Paper Co. .....
(50,000 lbs. only) 14.35c
Collins Mfg. Co. (50,000 lbs. only) 13.49c
(50,000 lbs. only) 13.95c
(100,000 lbs. only) 14.25c
Aetna Paper Co. .....
(500,000 lbs. only) 13.88c
Cauthorne Paper Co. .....
(400,000 lbs. only) 14.35c
Bradner, Smith & Co. .....
(50,000 lbs. only—less 3%) 14.69c
Whitaker Paper Co. .....
(50,000 lbs. only) 14.35c
Messinger Paper Co. .....
(100,000 lbs. only) 14.35c

No. 108—2,500,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Whitehead & Alligar Co. .....
(100,000 lbs. only) 14.35c
Central Ohio Paper Co. .....
(100,000 lbs. only) 14.45c
Ris Paper Co., Inc. .....
(100,000 lbs. only) 14.35c
Chicago Paper Co. .....
(100,000 lbs. only) 13.90c
Wilcox-Walter-Furlong Paper Co.
(100,000 lbs. only) 14.35c
R. P. Andrews Paper Co. .....
(50,000 lbs. only) 14.35c
Collins Mfg. Co. .....
(50,000 lbs. only) 13.49c
(50,000 lbs. only) 13.95c
(100,000 lbs. only) 14.25c
Aetna Paper Co. .....
(500,000 lbs. only) 13.88c
Cauthorne Paper Co. .....
(400,000 lbs. only) 14.35c
Bradner, Smith & Co. .....
(50,000 lbs. only—less 3%) 14.69c
Whitaker Paper Co. 14.35c
Messinger Paper Co. .....
(400,000 lbs. only) 14.35c

No. 109—100,000 lbs., yellow, No. 26; flat, cut 34x44 ins. Min. order 5,000 lbs.

Aetna Paper Co. 15.98c
Graham Paper Co. .....
(50,000 lbs. only) 16.35c

No. 110—700,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Collins Mfg. Co. .....
(50,000 lbs. only) 14.10c
(50,000 lbs. only) 14.55c
(50,000 lbs. only) 14.85c
Aetna Paper Co. .....
(400,000 lbs. only) 14.13c

No. 111—700,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Collins Mfg. Co. .....
(50,000 lbs. only) 14.10c
(50,000 lbs. only) 14.55c
(50,000 lbs. only) 14.85c
Aetna Paper Co. 14.13c

50 Per Cent Bond, White and Colored

No. 120—10,000 lbs., white, No. 26; flat, cut any size, min. width 21 ins., max. width 34 ins.

R. P. Andrews Paper Co. 17.53c
Aetna Paper Co. 18.50c

No. 121—20,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 35 ins.

R. P. Andrews Paper Co. 14.65c
Aetna Paper Co. 15.84c

No. 122—10,000 lbs., white, No. 32; rolls, 24 and 32 ins. wide. (3-inch fiber cores.)

R. P. Andrews Paper Co. 14.35c
Aetna Paper Co. 15.49c

No. 123—5,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 34 ins. Min. order, one color, one substance, 2,500 lbs.

Aetna Paper Co. 16.59c

75 Per Cent White Bond

No. 125—2,000 lbs., No. 26; flat, cut any size, min. width 21 ins., max. width 32 ins. Min. order, 2,000 lbs.

R. P. Andrews Paper Co. 22.95c

No. 126—2,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 21 ins., max. width 32 ins. Min. order, one substance, 2,000 lbs.

R. P. Andrews Paper Co. 22.95c

100 Per Cent White Bond

No. 128—10,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 16 ins., max. width 32 ins. Min. order, one substance, 2,000 lbs.

Paper Corp. of U. S. 23.45c
R. P. Andrews Paper Co. 24.25c
Barton, Duer & Koch Paper Co. 22.90c

100 Per Cent Declaration Bond

No. 140—3,000 lbs., Nos. 32 and 40; flat, cut 25½x33 ins. Min. order, one substance, 3,000 lbs.

Stanford Paper Co. 26.00c
Old Dominion Paper Co. 25.84c

100 Per Cent Parchment Deed

No. 141—2,000 lbs., No. 64; flat, cut 33x34 ins. Min. order, 2,000 lbs.

R. P. Andrews Paper Co. 26.42c
Barton, Duer & Koch Paper Co. 32.00c

Chemical Wood White Ledger

No. 151—500,000 lbs., No. 48, flat, cut any size, min. width 17 ins., max. width 48 ins.

Aetna Paper Co. .....
(200,000 lbs. only) 8.24c
Marquette Paper Corp. (Maximum 1,200,000 lbs., lots 19, 20, 21, 151, 152, 153) 8.35c

No. 152—400,000 lbs., No. 56; flat, cut any size, min. width 17 ins., max. width 48 ins.

Marquette Paper Corp. (Maximum 1,200,000 lbs., lots 19, 20, 21, 151, 152, 153) 8.35c

No. 153—300,000 lbs., No. 48; rolls, 34 and 48 ins. wide (3-inch fiber cores).

Wilcox-Walter-Furlong Paper Co. 7.40c
Marquette Paper Corp. (Maximum 1,200,000 lbs., lots 19, 20, 21, 151, 152, 153) 8.10c

25 Per Cent Ledger, White and Colored

No. 154—500,000 lbs., white, No. 48; flat, cut 22x34, 24x38, 28x34, 32x42 and 34x44 ins. Min. order, one substance, 5,000 lbs.

Baxter Paper Co. .....
(100,000 lbs. only) 13.50c
Collins Mfg. Co. .....
(50,000 lbs. only) 13.52c
(50,000 lbs. only) 13.97c
(100,000 lbs. only) 14.10c
Aetna Paper Co. .....
(100,000 lbs. only) 13.49c
Mudge Paper Co. .....
(25,000 lbs. only) 14.45c
Tobey Fine Papers, Inc. .....
(100,000 lbs. only) 14.45c

No. 155—200,000 lbs., white, No. 56; flat, cut 22x34, 24x38, 28x34, 32x42 and 34x44 ins. Min. order, 5,000 lbs.

Walker Goulard Plehn Co. 14.52c
Collins Mfg. Co. .....
(50,000 lbs. only) 13.52c
(50,000 lbs. only) 13.97c
Aetna Paper Co. .....
(25,000 lbs. only) 13.49c
Mudge Paper Co. .....
(100,000 lbs. only) 14.45c

No. 156—500,000 lbs., blue, buff, green, pink, salmon and yellow, No. 56; flat, cut 24x38, 28x34, and 34x44 ins. Min. order, one substance, one color, 5,000 lbs.

Walker Goulard Plehn Co. .....
(200,000 lbs. only) 15.25c
R. P. Andrews Paper Co. .....
(100,000 lbs. only) 14.13c
Collins Mfg. Co. .....
(50,000 lbs. only) 14.12c
(50,000 lbs. only) 14.57c
(100,000 lbs. only) 14.90c
Aetna Paper Co. .....
(200,000 lbs. only) 13.99c
Mudge Paper Co. .....
(10,000 lbs. only) 14.45c

50 Per Cent Ledger, White and Colored

No. 160—10,000 lbs., white, Nos. 48 and 56; flat, cut 18½x36, 18½x40¼, 23x36, 24x38, 28x29, 28x34, 29x41, and 32x42 ins. Min. order, one substance, 10,000 lbs.

Chicago Paper Co. 15.20c
Aetna Paper Co. 15.97c
Old Dominion Paper Co. 15.877c
Mudge Paper Co. .....
(25,000 lbs. only) 16.39c

No. 161—10,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow No. 56; flat, cut 18½x36, 18½x40¼, 19x24, 23x36, 28x34 and 32x42 ins. Min. order, one substance, one color, 5,000 lbs.

Chicago Paper Co. 15.85c
Aetna Paper Co. 16.47c

75 Per Cent Ledger, White and Colored

No. 168—4,000 lbs., white, Nos. 48 and 56; flat, cut 21x32, 24x38, 28x29, and 28x34 ins. Min. order, one substance, 4,000 lbs.

Barton, Duer & Koch Paper Co. 19.00c

No. 169—3,000 lbs., blue, buff, cherry, green, pink, salmon and yellow. No. 56; flat, cut 24x38, 28x34, and 34x44 ins. Min. order, one substance, one color, 3,000 lbs.

Barton, Duer & Koch Paper Co. 21.50c

100 Per Cent White Ledger

No. 176—20,000 lbs., No. 48; flat, cut 24x38, 28x34, and 32x42 ins. Min. order, 4,000 lbs.

Walker Goulard Plehn Co. 25.93c
Paper Corp. of U. S. 20.74c
R. P. Andrews Paper Co. 25.25c
Barton, Duer & Koch Paper Co. 21.80

No. 177—80,000 lbs., No. 64; flat, cut 24x38, 28x34, and 32x42 ins. Min. order, 5,000 lbs.

Walker Goulard Plehn Co. 25.93c
Paper Corp. of U. S. 20.74c
R. P. Andrews Paper Co. .....
(40,000 lbs. each 30 days) 25.25c
Barton, Duer & Koch Paper Co. 20.80c

Chemical Wood White Index

No. 183—300,000 lbs., 22½x28½—148; flat, cut any size, min. width 17 ins., max. width 42 ins.

Wilcox-Walter-Furlong Paper Co. 7.68c

No. 184—1,000,000 lbs., 22½x28½—182 and 230; flat, cut 34½x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, one weight, 10,000 lbs.

Whitaker Paper Co. .....
(400,000 lbs. only) 7.67c

50 Per Cent Index, White and Colored

No. 189—200,000 lbs., white, 22½x28½—148; flat, cut 24x38, 28x34, and 34½x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.

Walker Goulard Plehn Co. .....
(50,000 lbs. only) 15.90c
R. P. Andrews Paper Co. 12.47c
Barton, Duer & Koch Paper Co. 11.68c
Whitaker Paper Co. 13.93c

No. 190—1,000,000 lbs., white, 22½x28½—182 and 230; flat, cut 24x38, 28x34, 32½x42, and 34½x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, one weight, 10,000 lbs.

Walker Goulard Plehn Co. .....
(50,000 lbs. only) 15.90c
Barton, Duer & Koch Paper Co.
(500,000 lbs. only) 11.68c
(500,000 lbs. only) 12.15c

No. 191—700,000 lbs., blue, buff, cherry, fawn, green, pink, salmon and yellow, 22½x28½—182 and 230; flat, cut 24x38, 28x34, and 34½x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, one color, one weight, 5,000 lbs.

Barton, Duer & Koch Paper Co. 13.25c

No. 192—300,000 lbs., blue, buff, cherry, fawn, green, pink, salmon and yellow, 22½x28½—148; flat, cut 24x38, 28x34, and 34½x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, one color, one weight, 5,000 lbs.

R. P. Andrews Paper Co. 12.87c
Barton, Duer & Koch Paper Co. 12.43c

100 Per Cent White Index

No. 195—20,000 lbs., 22½x28½—148; flat, cut 24x38, 28x34, and 32x42 ins.

Walker Goulard Plehn Co. 25.11c
Paper Corp. of U. S. 20.75c
R. P. Andrews Paper Co. 25.80c
Barton, Duer & Koch Paper Co. 20.80c

No. 196—100,000 lbs., 22½x28½—approximately 206; flat, cut 20½x30½ and 34½x44 ins.

Walker Goulard Plehn Co. 25.11c
Paper Corp. of U. S. 20.75c
R. P. Andrews Paper Co. .....
(40,000 lbs. only each 30 days) 25.80c
Barton, Duer & Koch Paper Co. 20.30c

Coated Cover, White and Colored

No. 201—30,000 lbs., white, 20x26—120; flat, 26½x41 ins., the grain to run lengthwise of the sheet. Min. order, 5,000 lbs.

Stanford Paper Co. 9.89c

No. 202—40,000 lbs., India tint and light green, 20x26—100; flat, 26½x41 ins. Min. order, 5,000 lbs.

No bids.

Antique-Finish Cover, White and Colored

No. 203—500,000 lbs., antique; white, blue, buff, dawn, quaker drab, terra cotta, gray, brown, green, gobelin blue, granite, tea and yellow; flat, 19½x25¼—95, with projecting colored-paper marker between each 500 sheets. Min. order, one color, 5,000 lbs.

R. P. Andrews Paper Co. 8.37c
Stanford Paper Co. .....
(240,000 lbs. only) 8.93c
Whitaker Paper Co. 8.32c
Marquette Paper Corp. 8.98c

50 Per Cent Laid Cover, Colored

No. 205—70,000 lbs., blue, cream, white, gray and green, 20x26—130; flat, cut 19½x25¼ ins., in wrapped bundles with projecting colored-paper marker between each 500 sheets. Min. order, one color, 2,000 lbs.

R. P. Andrews Paper Co. 12.37c
Whitaker Paper Co. 12.23c

Wood Manila

No. 208—100,000 lbs., 24x36—80 and 100; flat, cut 25x38 and 32x42 ins., with projecting colored-paper marker between each 500 sheets.

Marquette Paper Corp. 5.25c

No. 209—200,000 lbs., 24x36—80 and 100; rolls, 21 and 36 ins. wide (3-inch fiber cores).

Paper Corp. of U. S. 4.88c
Bulkley, Dunton & Co. 4.75c
Frank Parsons Paper Co. 4.75c

No. 210—100,000 lbs., 24x36—120; rolls, 18-ins. diameter, 4¾, 5¾, and 7½ ins. wide, wound on wooden plugs, 1½-in. hole.

Whitaker Paper Co. .....
(4¾ inch rolls) 5.875c
(5¾ and 7½ inch rolls) 5.625c

Chemical Wood Manila

No. 211—50,000 lbs., 24x36—140 and 160; flat, cut any size. Min. order, one weight, 5,000 lbs.

No bids.

Hemp and/or Jute Manila

No. 213—50,000 lbs., 24x36—160 and 280; rolls, 48 ins. wide (3-inch fiber cores). Min. order, 5,000 lbs.

R. P. Andrews Paper Co. 18.75c
17.75c
Perkins-Goodwin Co. 18.50c

No. 2 Kraft

No. 217—50,000 lbs., 24x36—80 to 160; flat, cut any size in wrapped bundles.

R. P. Andrews Paper Co. 14.75c

No. 218—50,000 lbs., 24x36—80 to 160; cut any size, folded (25 sheets per fold), in wrapped bundles.

R. P. Andrews Paper Co. 4.85c

No. 219—150,000 lbs., 24x36—80 to 160, rolls, minimum width 9 ins., maximum width 48 ins., wound on wooden plugs, 1½-inch hole, or on 3-inch fiber cores as may be specified.

R. P. Andrews Paper Co. 4.60c
Old Dominion Paper Co. 4.797c

Imitation Kraft

No. 220—50,000 lbs., 24x36—80 to 160; flat, cut any size; in wrapped bundles.

No bids

No. 221—50,000 lbs., 24x36—80 to 160; cut any size, folded (25 sheets per fold); in wrapped bundles.

No bids

No. 222—150,000 lbs., 24x36—80 to 160; rolls, min. width 9 ins., max. width 48 ins., wound on wooden plugs, 1½-inch hole or on 3-inch fiber cores as may be specified.

No bids

White Gummed

No. 252—1,000,000 sheets, flat, 22x34 ins. Min. order, 25,000 sheets.

No bids

25 Per Cent Blotting, White and Colored

No. 254—20,000 lbs., white, flat, 19x24—160, in wrapped bundles. Min. order, 10,000 lbs.

Central Ohio Paper Co. 8.77c
R. P. Andrews Paper Co. 8.47c
Swigart Paper Co. 12.00c
Bulkley, Dunton & Co. 12.00c
Mathers-Lamm Paper Co. 9.15c
Barton, Duer & Koch Paper Co. ... 12.00c
Stanford Paper Co. 8.77c
Butler Co. 8.77c
Old Dominion Paper Co. 9.238c
Milldraft Paper Co. 9.25c
Cauthorne Paper Co. 9.25c
Bradner, Smith & Co. (less 3%) 9.04c
Mudge Paper Co. 9.25c
Virginia Paper Co. 9.25c
Whitaker Paper Co. 9.93c
Graham Paper Co. 8.72c
Tobey Fine Papers, Inc. 11.80c

No. 255—100,000 lbs., buff, salmon

and moss green; flat, 19x24—160, in wrapped bundles. Min. order, one color, 2,000 lbs.

Central Ohio Paper Co. (buff) ..	29.15c
(salmon)	9.02c
(moss green)	9.46c
R. P. Andrews Paper Co.	8.97c
Swigart Paper Co.	12.00c
Bulkley, Dunton & Co.	12.00c
Mathers-Lamm Paper Co.	9.28c
Barton, Duer & Koch Paper Co...	12.00c
Standford Paper Co. (buff)	9.15c
(salmon)	9.02c
(moss green)	9.46c
Butler Co. (buff)	9.15c
(salmon)	9.02c
(moss green)	9.46c
Old Dominion Paper Co.	9.3949c
Millcraft Paper Co.	9.45c
Cauthorne Paper Co.	9.45c
Bradner, Smith & Co. (buff)	9.43c
(salmon—less 3%)	9.30c
(moss green)	9.75c
Mudge Paper Co.	9.45c
Virginia Paper Co.	9.45c
Whitaker Paper Co.	10.43c
Graham Paper Co. (buff)	9.10c
(salmon)	8.97c
(moss green)	9.40c
Tobey Fine Papers, Inc.	11.80c

High-Finish Red Sulphite

No. 265—30,000 lbs., flat, 24x36—320, in wrapped bundles. Min. order, 5,000 lbs.

Paper Corp. of U.S.	8.43c
Mudge Paper Co.	8.25c

High-Finish Chemical Wood Manila Tag

No. 271—100,000 lbs., 24x36—280; flat, cut any size, min. width 24 ins., max. width 38 ins.

No bids

Calendered Tag, Manila and Colored

No. 276—1,000,000 lbs., manila, 22½x28½—150; rolls, 23¼ and 26½ ins. wide (6-inch fiber cores with metal tips).

Mathers-Lamm Paper Co.	8.50c

No. 277—100,000 lbs., blue, brown, green, ivory, pink, red, salmon and yellow, 22½x28½—150; rolls 23¼ and 26½ ins. wide (6-inch fiber cores with metal tips). Min. order, one color, 10,000 lbs.

Mathers-Lamm Paper Co.	9.50c

Jute Tag

No. 280—150,000 lbs., 22½x28½—200 and 280; flat, cut 28x38 ins. Min. order, one weight, 10,000 lbs.

Perkins-Goodwin Co.	12.20c
Virginia Paper Co.	11.25c

Manila Board

No. 281—100,000 lbs., 22½x28½—400; flat, cut 22x34 ins., in wrapped bundles with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.

Paper Corp. of U.S.	5.74c

Railroad Board, White and Colored

No. 302—150,000 sheets, white, flat, 22x34 ins., 4-ply, each 100 sheets fully banded. Min. order, 10,000 sheets.

Bulkley, Dunton & Co. (per M sheets)	34.38c
Barton, Duer & Koch Paper Co...	34.03c
Stanford Paper Co.	34.38c
Old Dominion Paper Co.	33.868c
Bradner, Smith & Co. (less 3%)..	35.51c

No. 303—40,000 sheets, white, flat, 22x34 ins., 8-ply, each 100 sheets fully banded. Min. order, 5,000 sheets.

Bulkley, Dunton C Co. (Per M sheets)	49.46c
Barton, Duer & Koch Paper Co...	48.97c
Stanford Paper Co.	49.46c
Old Dominion Paper Co.	48.728c
Bradner, Smith & Co. (less 3%)..	51.08c

No. 304—20,000 sheets, white, flat 22x34 ins., 14-ply, each 50 sheets fully banded. Min. order, 5,000 sheets.

Bulkley, Dunton & Co. (Per M sheets)	72.66c
Barton, Duer & Koch Paper Co...	71.94c
Stanford Paper Co.	72.66c
Old Dominion Paper Co.	71.578c
Bradner, Smith & Co. (less 3%)..	75.04c

No. 305—100,000 sheets, ash gray, green, orange and red, flat, 22x34 ins., 4-ply, each 100 sheets fully banded. Min. order, one color, 5,000 sheets.

Bulkley, Dunton & Co. (Per M sheets)	43.94c
Barton, Duer & Koch Paper Co...	42.60c
Stanford Paper Co.	43.04c
Old Dominion Paper Co.	42.409c
Bradner, Smith & Co. (less 3%)..	44.46c

Wood Bristol, Colored

No. 306—250,000 lbs., buff, 22½x28½—150; rolls, 20 ins. wide (6-inch iron cores).

Frank Parsons Paper Co.	5.50c

No. 307—50,000 lbs., mellon, flat, 20x30—172; in wrapped bundles with projecting colored-paper marker between each 100 sheets.

No bids

No. 308—350,000 lbs., blue, buff, gray, green, mellon, pink and yellow, 22½x28½—184; rolls, 20 ins. wide (6-inch iron cores).

No bids

United States Postal Card Bristol

No. 325—1,500,000 lbs., 22½x28½—188; rolls, 22 and 33 ins. wide and 36 ins. in diameter (6-inch iron cores).

R. P. Andrews Paper Co.	5.97c
Whitaker Paper Co. (1,000,000 lbs.)	5.91c

No. 326—1,500,000 lbs., 22½x28½—188; rolls, 22 and 33 ins. wide and 36 ins. in diameter (6-inch iron cores).

R. P. Andrews Paper Co.	6.97c
Whitaker Paper Co. (1,000,000 lbs.)	6.01c

No. 327—1,500,000 lbs., 22½x28½—188; rolls, 22 and 33 ins. wide and 36 ins. in diameter (6-inch iron cores).

R. P. Andrews Paper Co.	5.97c
Whitaker Paper Co. (1,000,000 lbs.)	6.09c

Pressboard, Colored

No. 351—40,000 sheets, red, flat, 24x32 ins., thickness .0140 inch. Min. order, 5,000 sheets.

Resolution Paper Products Co. (Per C sheets)	7.4366c
R. P. Andrews Paper Co.	7.15c
Barton, Duer & Koch Paper Co...	7.75c
Old Dominion Paper Co.	7.498c
Whitaker Paper Co.	7.21c

No. 352—20,000 sheets, gray, flat, 30x36 ins., thickness .0300 inch. Min. order, 5,000 sheets.

Resolute Paper Products Co. per C sheets	24.39c
R. P. Andrews Paper Co.	23.59c
barton, Duer & Koch Paper Co.	18.85c
Old Dominion Paper Co.	24.587c
Whitaker Paper Co.	23.74c
Bird and Son, Inc.	19.50c

News Board

No. 360—1,200,000 lbs., 26x38 ins., No. 100, flat, cut any size, min. 21x32 ins., max. 40x52½ ins. (to be trimmed square on four sides).

Resolute Paper Products Co.	2.834c
R. P. Andrews Paper Co.	2.779c
Barton, Duer & Koch Paper Co.	2.78c
Stanford Paper Co.	2.75c
Old Dominion Paper Co.	2.8089c
Mudge Paper Co.	2.763c
Virginia Paper Co.	2.78c
Whitaker Paper Co.	2.6638c

Binder's Board, No. 1 Quality

No. 366—800,000 lbs., flat, to trim 25x30 ins., Nos. 16, 18, 20, 25, 30 and 40.

Mathers-Lamm Paper Co. (440,000 lbs. only)	4.085c

No. 367—70,000 lbs., 25¾x30¼ ins., Nos. 12 and 20; flat, to trim 34x44 ins.

No bids.

Binder's Board Best Quality

No. 368—50,000 lbs., flat, to trim 20x30 ins., and 22x28 ins., Nos. 18, 20, 25, 30, 35, 40 and 45. Min. order, 5,000 lbs.

Consolidated Paper Co. (carload lots)	5.40c
(less than carload lots)	5.87c

Navy Salutes Wood

"You can't fight a war, much less carve out ultimate victory, without wood," says Rear Admiral Clark Howell Woodward, Chief, Navy Incentive Division, in an article enumerating the services wood and wood products have performed toward victory on the Seven Seas.

The article, *Wood at War*, a Naval salute to the forest industries' contribution to the Navy's splendid performance, has been published as a small booklet, sized to fit into pay envelopes, by American Forest Products Industries, Inc., and is being distributed to forest industry firms in bulk, gratis, to be redistributed to their employees. It is hoped that this formal tribute from the Navy will stimulate woods and mill workers to redoubled efforts to step up urgently needed production.

Issues Second Esso War Map

The Colonial Beacon Oil Company, 26 Broadway, New York, has issued a second war map, the first being distributed one year ago. It is 33 by 23 inches in size, and consists of two maps, printed back to back. It shows the "world island," deals briefly with the theories of geopolitics and was prepared to include obscure and well known places that may be of vast importance during the campaigns that will win the war. This map is new in every detail and was made especially for Esso marketers. Its preparation involved much research with the consular staffs for foreign nations.

The map will be available to the public this month and copies of the 1942 Esso war map are still available from the company upon request.

Industrial Electronics—A Promise and an Accomplishment

By L. A. Umansky, Asst. Mgr., Industrial Engr. Div. Gen. Electric Co.

General Electric believes in the steadily growing use of electronics in industry. We base this belief and make this prediction, not on any desire to exploit and to cash-in on something supposedly new, with a fashionable name and a lot of blue-sky publicity—but on a much sounder foundation. General Electric has been in the electronics business since the very birth and infancy of this branch of engineering, and for more than twenty years has consistently applied electronic equipments in industrial work. Hence, our optimism is based on realities and knowledge of the past and present.

Illustrating Wide Use of Electronics

There is no better way to illustrate the already wide use of electronics in our industrial life than to point out that in 1943 more than 25 billion kw-hrs, or about 10 per cent of all electrical energy generated in the United States by any source of power and for any purpose whatsoever, will pass through electronic devices. I refer, of course, to the rapid growth of the electro-chemical and light metal industries which require a very large bulk of d-c power, employing electronic rectifiers for this purpose.

Electronic control has already revolutionized the art of resistance welding, bringing into play heretofore unknown precision, speed, and reliability. And this fact, in turn, has brought about profound changes in many of our manufacturing industries.

The electronic control of motors—and, therefore, of machines driven by these motors—has long ago passed from laboratories into factories, and is accepted by engineers and users as a routine matter. No one familiar with industrial engineering considers any longer as a daring or pioneering feat the use of electron tubes for accurately controlling the speed or acceleration of motors; for the precision positioning of a sheet of paper on a printing press; for color matching; for controlling wire tension; for smoke detection or for temperature control—to mention a few out of hundreds of cases.

Therefore, industrially speaking, we do not subscribe to the claim that we are "on the verge of an electronics age" which will supposedly dawn on us after the guns stop firing on the battlefields. We are in this electronics age already, and actually have been in it for years. Industrial electronics is not only a promise for tomorrow—it is an accomplishment of today.

Electronics—Another Tool

We look upon electronics as another tool added to our well filled tool chest and used side by side with other tools on hand. Knowing as we do all other phases of electrical engineering, which we have helped to develop in the past 65 years, we certainly will not make you believe that these brilliant and basic accomplishments of the past, like the induction motor, transformer, high-voltage apparatus, amplidyne, and so forth, will be relegated to oblivion by electronics. In the true perspective of things, electronics has taken its place as an equal partner, side by side with other electrical apparatus, enhancing rather than superseding it.

Better Results

We use electronics because in many cases it gives us better results than we can get with other tools, or because the engineering problem cannot be solved otherwise. Nothing but harm will accrue to engineering progress, and more specifically to the electronic art, if electronics is used without discrimination, just because it is relatively new and, therefore, fashionable. For instance, in some applications, resistance-type electric heating can give results equally as good as radio-frequency induction heating, and can do so at lower first cost and higher efficiency. An electronic equipment would then be a misapplication and, therefore, poor engineering. Luckily, electrical engineers have a good assortment of tools available, so that they can and should pick the right one for the application.

Advantages of Electronics

What are, then, the advantages of electronics and when do we use and recommend electronic equipment?

In many control and measurement applications, the use of electronics gives us a chance to detect and then to amplify signals so small that they would be lost otherwise. This may be called the "extension of our electrical senses." In the same category fall numberless counting and inspection devices replacing the human eye or human touch with something much finer, faster, and more reliable. In a fast industrial process, this application of electronics opens a new page, fulfills a newly created function.

An electronic device has no mechanical or electrical inertia. Its speed of response is high. This is just what is needed for many fast-moving processes. A good example is the ignition contractor for resistance welding.

An electronic equipment has no moving parts. This usually means lower maintenance and installation cost.

A power rectifier to convert a-c power to direct current requires less material—and critical material at that—than an equivalent rotating equipment. Its efficiency is higher.

For induction or dielectric heating, requiring very high frequency, say several hundred kilocycles or even megacycles, nothing but electronic equipment will do—a good example of when electronics is a "must." In short: Electronics is employed when it can do the work in a better or in a simpler way, or at lower over-all cost.

Electronics in Combination with Other Electrical Apparatus

The great majority of industrial equipments employing electronic parts also include other apparatus. In fact, in most cases, the electronic part comprises the small end of the whole. For instance, an electronic speed regulator with a cost of only, say, $500 may be combined with a $50,000 equipment including motors, generators, control, switchgear, etc. In such a case, the electronic part, taken by itself, is practically worthless; the rest of the equipment without electronics may not deliver the goods—the two together, properly blended, solve the problem.

Should Be Familiar with Whole Range

It is obvious that for best results engineers interested in industrial applications of electronics should be thoroughly familiar with the whole range, characteristics, and possibilities of electrical apparatus. A carpenter cannot build a house using nothing but a hammer; he also needs a saw, a chisel, and a few nails, and he must be equally skillful in using them all.

Above everything else, the engineer needs a thorough knowledge of the industry itself and of its processes, from all angles: electrical, mechanical, or chemical. Then a proper place for the best use of electronics is easily found—to improve the product, to lower its cost, to increase its output.

We are optimistic about the bright future of industrial electronics; we know that it will require on our part some hard and diligent work, all of our wits, and a good deal of enthusiasm. And we are ready to contribute freely of all these ingredients.

Martell & Ferree to Be Agents

The C. O. Bartlett & Snow Company of Cleveland, Ohio, manufacturers of foundry, sand handling and conditioning equipment, driers and other heat processing equipment, boiler plant, coal handling system and other conveying, elevating and special processing equipment, has announced the appointment of Martell & Ferree, 1505 Race Street, Philadelphia, sales representatives in the Philadelphia territory, comprising the State of Delaware, Southern New Jersey and Eastern Pennsylvania.

Martell & Ferree are widely and favorably known in this territory. They have been handling certain of the Bartlett & Snow lines prior to this new arrangement and represent in addition, the Falk Company, Tow-Motor and others.

WPB to Urge Container Re-Use

The War Production Board will initiate soon an "educational campaign" among manufacturers to curtail the demand for new shipping containers, Charles L. Sheldon of the Hood Rubber Company told a meeting of the Purchasing Agents Association of New York this week.

Pointing out that production of corrugated and solid fibre boxes is running approximately 10,000 tons a week behind industry's needs, Mr. Sheldon stated that the WPB would emphasize the possibilities in the reuse of containers, the cleaning out of inventories and the salvaging of containers for use by companies other than the original users.

W. H. Richardson to be Manager

The Timken Roller Bearing Company recently announced the appointment of W. H. Richardson as general manager of all activities of all divisions of The Timken Roller Bearing Company on the entire West Coast and in the Orient. In this capacity he is to be in complete charge in that territory for the sale and merchandising of roller bearings for original equipment in railroad cars and locomotives, automobiles and trucks, and all types of industrial machinery, as well as the sale and merchandising of bearings for replacement purposes, and will also supervise all sales of Timken Steel and Tubing and Timken Rock Bits.

Mr. Richardson came with The Timken Roller Bearing Company in 1917, serving in various sales capacities until 1929 when he was made Manager of The Timken Roller Bearing Service and Sales Company, and Vice President of The Timken Roller Bearing Company Limited, Canada, in which capacities he handled the sale of bearings for replacement in the United States, Canada, Latin American countries and the Orient.

In 1941 he was made Assistant General Sales Manager of The Timken Roller Bearing Company and has been devoting much of his time to study of the development of the Post-war markets for the various products of the Company.

In this connection he has spent the last two months in the Pacific Coast states, making an analysis of the possibilities for increasing Post-war markets for Timken products and has found that the possibilities for increased business there fully justify the aggressive sales effort which is now contemplated.

The territory to be developed under his supervision includes the eleven western states comprising over one-third of the area of the United States, including Washington, Oregon, California, Arizona, Nevada, Utah, Idaho, New Mexico, Colorado, Wyoming and Montana. In addition, Mr. Richardson is to have charge of all Timken activities in the entire Orient, including the Philippines, and China.

To Study Abitibi Case

TORONTO, September 20, 1943 — A committee of three Toronto men has been appointed by Premier George A. Drew of Ontario in a bid to find "some normal form of management" for the Abitibi Power and Paper Company, Ltd., representing a once-great industrial empire whose assets totaled more than $100,000,000.

In announcing appointment of the committee last night, Mr. Drew said he feels it is in the interest of the public, investors and company workers that efforts be made to restore to normal management a company which went into receivership in 1932 and whose affairs since then have been frequently before the courts because bondholders and other interests could not agree upon a plan of capital reorganization.

If the committee fails to arrange an agreement on a voluntary basis without delay, the Premier said, a commission will be appointed "to bring in formal findings to assist the Government in preparing legislation which will bring this unsatisfactory situation to an end."

Members of the committee will be Frank J. Hughes, K.C., chairman; Dr. Gilbert Jackson and William Zimmerman, K.C.

New Weights for Tablets and Facials

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., September 20, 1943—To facilitate production of as many writing tablets for school children, as many facial tissues for women, as much stationery for business offices, and as many other products as possible out of the available paper supply, new schedules to Order L-120 have been issued, the Pulp and Paper Division of the War Production Board announced today.

Under the order, which sets up maximum weights and sizes for the paper used, manufacturers can make more units or sheets of paper stationery, tablets, notebooks, pads, loose-leaf fillers, commercial envelopes, facial tissue, paper towels and napkins out of a given amount of paper. By using paper that is only a little thinner or lighter in weight than the grades previously used, manufacturers will be better able to operate under wartime restrictions.

Since the lighter, thinner products will take up less room, the order is also expected to effect a saving of approximately 1,100 carloads of shipping space as well as considerable quantities of packing materials.

After September 30, commercial envelopes may be manufactured only from paper not exceeding 28 pounds in weight, except that manufacturers who have other stock on hand August 30, may use it provided they do so before December 28, 1943.

Envelopes with linings are no longer permitted, and limitations as to boxing and packing are also imposed. Envelopes with mechanical fasteners or closures may not include adhesives on the flap, thus conserving the supply of imported materials from which adhesives are manufactured.

After September 29, social correspondence envelopes, paper and cards are limited in weight of paper used so as not to exceed 24-pound stock for envelopes, 20-pound for paper, and 100-pound for cards.

Manufacturers of wedding invitations and announcements may use no heavier than 24-pound stock for envelopes and sheets, and 120-pound for cards. Wedding invitation sets can no longer have two envelopes per set, but may have only a single envelope.

The armed forces currently are using 12 to 14% of the total production of paper towels and approximately 10% of total paper napkin production. The present laundry situation, with its critical manpower shortage has also placed an enormous burden on paper towels, napkins and facial tissue. Manufacturers of these papers are operating at capacity levels. In an effort to meet demands, the new schedule provides for a reduction only of maximum basis weights and sizes, which will increase the actual yardage available for the amount of raw material used.

In the case of towels and napkins, maximum weights are reduced from 5 to 20%. Facial tissue weights are about unchanged, but the sizes of paper napkins are reduced from a maximum area of 400 square inches to 180 square inches. The maximum size of facial tissue is 9 by 10 inches instead of 15 by 20 inches.

Basis weights of towels will now be reduced to three or four and napkins to two. Facial tissue counts in packages, or the number of units enclosed, have also been reduced to a maximum of four, and household packages of napkins have been reduced from 15 or 20 counts to only two.

OPA Rules on Toilet Tissue

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., Sept. 22, 1943—Distributors of toilet paper were reminded by the Office of Price Administration today that their maximum prices must not exceed their March, 1942, percentage mark-up over cost or the specific percentage provided whichever is lower. At the same time, retailers also were reminded that in figuring their ceiling prices, they must not exceed the March 1942 mark-up over cost.

These pricing methods are set forth in Maximum Price Regulation No. 266 (Certain Tissue Paper Products) which became effective November 26, 1942.

Although the regulation established manufacturers' maximum prices by formula which held them to the October 1941—March 1942 levels or slightly lower, prices at retail, as reflected in the Bureau of Labor Statistics Retail Price Index of Toilet Paper Purchased by Wage Earners and Lower Salaried Workers in Large Cities, have continued to rise. This can be seen by reading of the following index:

(June 15, 1939=100)

October 15, 1941	102.3	September 15, 1942	109.3
March 15, 1942	109.6	December 15, 1942	109.8
		July 15, 1943	111.9

"While most distributors and retailers have cooperated fully, it is evident that some are using wider margins than allowed by the regulation, otherwise the index would have receded to at least the March 1942 level," OPA said. "The trend is contrary to the President's hold-the-line order. Some distributors may have misinterpreted the regulation as allowing either of the alternative mark-ups, though it clearly states that the lower of the two methods must be used. The situation is being watched carefully, and unless the index on this cost-of-living commodity declines to its proper level, appropriate action to protect the consumer will be taken."

New Pricing Basis for Wallpaper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., Sept. 22, 1943—Price ceilings on wall paper and unframed printed pictures, for all sellers, will be determined under Maximum Price Regulation No. 225 (Printing and Printed Paper Commodities), OPA has announced.

Heretofore the General Maximum Price Regulation applied to these two commodities, with highest March 1942 prices of each seller as his ceilings. Maximum Price Regulation No. 225 also uses March 1942 as the base date and continues the GMPR form of price control, so today's action will result in little or no change in prices or in the pricing procedure of sellers.

Little additional reporting, if any, to OPA will be required from the manufacturers of wallpaper as a result of this transfer. Price lists are on file with OPA from most wallpaper manufacturers. Price reports must be filed by manufacturers of unframed printed pictures to the extent that these have not already been filed, but such reports may take the form of manufacturers' price lists. No reports are required from wholesalers or retailers of these commodities.

The action is contained in Amendment No. 7 to Maximum Price Regulation No. 225, effective September 20th.

Employees In Waste Reduction

Interest in waste-control activities has been intensified as a result of the war effort, and the success or failure of such waste-reduction campaigns depends upon the cooperation of employees. To assist employers to bring about a greater consciousness among employees of the importance of waste-control efforts and to present the successful waste-reduction methods now in effect in some companies, the Policyholders Service Bureau offers its latest report entitled, "Enlisting Employees in Waste Reduction."

This study describes the methods of organizing waste-reduction activities and the different media used by employers to familiarize employees with the waste organization. To instill in employees the desire to reduce waste, appeals to their patriotism, to good sportsmanship and to self-interest are publicized in all media at the company's disposal, particularly the employee magazine and posters. The report is illustrated with articles and pictures taken from this type of publication.

Two check lists are included in the report. One list presents some 70 points at which interest and cooperation of personnel can help cut down unnecessary waste which is costing thousands of dollars yearly in loss of time, materials and supplies, machinery and equipment, utilities and space. The other contains a 14-point plan of employee cooperation as used by one company in its war on waste.

A copy of this report is available to executives who address the Bureau on their business stationery. Address: Policyholders Service Bureau, Metropolitan Life Insurance Company, One Madison avenue, New York 10, New York.

Paper Men Work for College

Two widely known leaders in the paper industry, D. Clark Everest, president of the Marathon Paper Mills Co., Wausau, Wis., and B. H. Metternich, manager of the Ashland, Wis., plant of the same company, are among prominent business leaders in Minnesota, Wisconsin and surrounding states who have formed a committee in the interest of Northland College, Ashland, Wis., to work with the board of trustees and faculty to prepare the college for a strong part in the post-war educational needs of the entire Northwest area.

The announcement came from John A. Reuling, president of Northland College, who also named several other business leaders who will participate in the development of a program designed to strengthen Northland's faculty and improve its educational facilities.

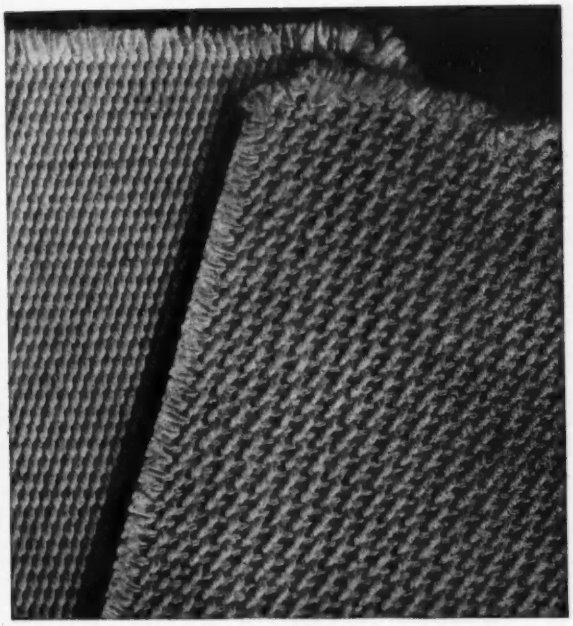
Makes Wraps for Cuba

[FROM OUR REGULAR CORRESPONDENT]

NASHUA, N. H., September 21, 1943—The Nashua Gummed and Coated Paper Company has just finished making two new and effective waxed wrappers for Cuba Industrial Y Commercial, S. A. of Havana. Many other concerns there also use Nashua wraps merchandised through the company's agent, Rafael Oriol.

The Nashua company is making an attractive wrapper for the new caramels put out by the E. F. Kemp Company, a longstanding firm, known to the public and the trade for its fine quality of nuts, with a number of stores in Boston and Greater Boston.

BRANDON
DRYER
FELTS



Manufactured from the raw cotton to the finished felt

BRANDON EXTRA

TRI-UMPH all cotton, 3 ply 53 oz., widths up to 250".

ZEPHYR all cotton, 3 ply 45 oz., widths up to 196".

ZEPHYR cotton-asbestos 3 ply Face 50% asbestos, back open construction for high porosity. Widths up to 166".

HINDLE S/54 all cotton special weave. Extra heavy duty Preshrunk, high porosity, widths up to 170".

SCAPA-HALL S/46 and S/46A. Available after VICTORY.

Sole Sales Agents

WOODWARD, BALDWIN & CO.

117 W. Baltimore St.

Baltimore, 1, Md.

Representatives:

J. S. Harrington, Watertown, N. Y.
C. B. Smith, Kalamazoo, Mich.
Christian Co., Richmond, Va.
D. H. White, Standard Supply Co., New Orleans
Frank P. Wilder, Portland, Ore.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending September 18, 1943

STOCKS

	High	Low	Last
A. P. W.	....	....	....
Armstrong Cork Co.	39¼	38½	39⅛
Celotex Corp.	13⅞	13	13⅞
Celotex Corp., pf.	18¾	18	18¾
Certain-Teed Products Corp.	6¼	5¾	6⅛
Certain-Teed Products Corp., pf.	60⅜	57	60⅜
Champion Paper & Fibre Co.	20½	20	20½
Champion Paper & Fibre Co., pf.	....	....	....
Congoleum Nairn Co.	22⅛	22½	22⅛
Container Corp. of America	21	20½	21
Continental-Diamond Fibre Co.	13	11¾	12⅞
Crown Zellerbach Co.	15⅞	15½	15⅞
Crown Zellerbach Co., pf.	99¼	98	99¼
Dixie Cup Co.	14	14	14
Dixie Cup Co.—A	44	43¼	43¾
Flintkote Co.	21⅜	20⅝	21¼
Flintkote Co., pf.	106½	106½	106½
Robert Gair	3¼	2⅞	3⅛
Robert Gair, pf.	12¾	12	12½
International Paper Co.	12⅝	11¾	12⅝
International Paper Co., pf.	67	62¾	66¾
Johns-Manville Corp.	88¾	85	88¾
Johns-Manville Corp. pf.	133	132¼	132¼
Kimberly-Clark Corp.	33½	33	33
MacAndrews & Forbes	26	25¼	26
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	39	37½	38
Mead Corp.	8⅝	8⅛	8⅝
Mead Corp., pf. A—6%	....	....	....
Mead Corp., pf. B—5½%	76	75	75
Paraffine Companies, Inc.	44	42½	44
Paraffine Companies, Inc., pf.	101	101	101
Rayonier, Inc.	14⅝	14⅛	14¼
Rayonier, Inc., pf.	31½	30⅝	31½
Ruberoid Co.	27½	27	27½
Scott Paper Co.	40¾	40¾	40¾
Scott Paper Co., pf.	....	....	....
Sutherland Paper Co.	29½	29¼	29¼
Union Bag & Paper Corp.	10¼	9⅝	10¼
United Paperboard Co.	4½	4⅛	4⅛
U. S. Gypsum Co.	73	69⅛	73
U. S. Gypsum Co., pf.	175	174½	175
West Virginia Pulp & Paper Co.	14⅜	14	14¼
West Virginia Pulp & Paper Co., pf.	109	107½	109

BONDS

Abitibi Pulp & Paper Co. 5s '53	....	....	....
Celotex Corp. 3¾s '55	101¾	101⅛	101⅛
Certain-Teed Products Corp. 5½s '48	101¾	101¾	101½
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	107¼	107	107¼
International Paper Co. 5s '47	104⅛	103⅞	103⅞
Mead Corp. 3½s '53	....	....	....
West Virginia Pulp & Paper Co. 3s '54	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending September 18, 1943

STOCKS

	High	Low	Last
American Box Board Co.	....	....	....
Brown Co., pf.	....	....	....
Great Northern Paper Co.	34½	33¾	34¼
Hummel-Ross Fibre Corp.	4¼	4⅛	4⅛
National Container Corp.	....	....	....
St. Regis Paper Co.	3⅜	3⅛	3⅜
St. Regis Paper Co., pf.	134¼	134	134
Taggart Corp.	4	4	4

BONDS

American Writing Paper Co. 6s '61	98½	98	98½

Brompton Co. Profits Lower

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., September 20, 1943—The Brompton Pulp and Paper Company has announced that its earnings during the first six months of 1943 were $395,197 as against $839,169 during the same period last year. The announcement adds:

"The difficult situation respecting wood supplies, referred to in the last annual report, has become intensified. Prices of wood have been increased. Large quantities are still being exported to the United States, and the company is obliged to obtain wood from remote regions at greatly increased cost to ensure immediate operations. Labor costs have risen sharply and the prices of many supplies and materials, particularly coal and lime, have been increased. Production has declined due to wartime restrictions, affecting certain essential materials. These many factors have combined to greatly increase manufacturing costs and to reduce production.

"No increases in selling prices have been obtained on any kraft products, which form the major part of the company's production since June, 1940. It is hoped that some adjustment may be obtained in the near future. Some improvement in earnings is being experienced during the third quarter."

Deal for Algonquin Mill Held Up

[FROM OUR REGULAR CORRESPONDENT]

OGDENSBURG, N. Y., September 20, 1943—Announcement is made here that A. E. Bartlett, superintendent of the Algonquin Paper Mill, has returned from a trip to Mexico which failed to produce any definite result regarding the sale of the property to Mexican interests. One of the Mexican principals in the proposed deal is expected here within the next week for conferences with Frank A .Augsbury, owner of the mill, which has been closed for some months as a result of the war shortages. The Mexican party has been negotiating for the purchase of the mill for more than a year but negotiations have hit a number of snags. In the event the mill is sold it is probable that Mr. Bartlett will go to Mexico as he has been offered a contract to serve as superintendent. The sale of the mill would mean that all of the machinery would be dismantled and shipped by freight to Mexico to be re-assembled. The mill has been rated as the principal industry of this city for many years and its loss would be a hard blow. Most of the formerly employed at the plant have found employment in war production at Messina.

United Wall Paper Profits Off

The United Wall Paper Factories, Inc., for the year to June 30: William H. Yates, president, reported net sales reached a new high record of $10,226,401, or 25% more than in the previous year. Net profit, after $484,027 provision for Federal income and excess profits taxes and $81,500 for contingencies, was $394,792, against $560,882 after $389,872 taxes for previous fiscal year.

National Container Nets $1.09

The National Container Corporation and wholly owned subsidiaries for the six months to June 30, reports a net profit of $361,625, equal to $1.09 each on 330,482 shares, against $418,060 or $1.26 a share last year. June quarter: Net profit, $186,486 or 56 cents a share, compared with $175,140 or 53 cents earned in preceding quarter.

United Paperboard Votes Dividend

The United Paperboard Company has voted a dividend of $4.25 a share on the preferred, payable October 3 to stock of record September 23. Previous payment was $3 on March 16, 1942.

Howard Race Horse Is Won by War Bond Buyer

A somewhat astonished brush manufacturer, Charles W. Gerndt, president of the Rockville Centre Taxpayers Association and no student of racing, recently found himself the owner of one of America's potentially fastest horses.

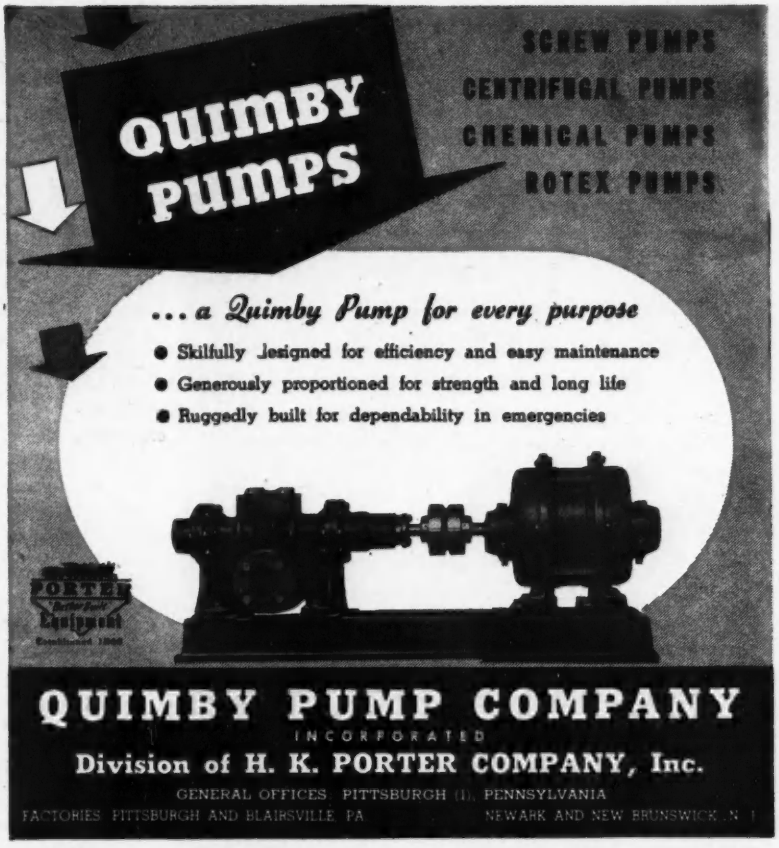
The animal that came into his possession is named—with a bow to the United States Treasury Department—Stage Bond, and is a son of Stagehand, which earned a total of $200,110 in prizes for its owner, Col. Maxwell Howard of Lexington, Ky., of the family of Howards widely known in the paper industry. This horse was the biggest money winner in 1938.

Mr. Gerndt took title to the yearling colt because he was one of the 333 persons who bought $1,000 bonds of the third war loan at a rally, marking the fiftieth anniversary of the incorporation of the village of Rockville Centre, L. I. Each $1,000 bond carried with it a chance at the ownership of the yearling, donated by Colonel Howard. When the drawing of the chances was completed by Mrs. Howell Howard, the Colonel's daughter-in-law, Mr. Gerndt was the winner.

He told friends he was "stunned," and did not know just what he would do with his colt. Meanwhile, the yearling will remain at Colonel Howard's Runnymede Farm, under the care of his trainer, Earle Sande, until January 1, 1944, when the youngster becomes two years old and eligible to race.

The colt, offered by Colonel Howard to stimulate the bond sale, fetched the highest price ever paid for a yearling — $333,000 worth of war bonds — as against $75,000 paid in 1929 for the 1-year-old New Broom, which never won a race.

Bryan Field, racing writer, conducted the auction of the $1,000 bonds which entitled each purchaser to a chance at the colt. Racing authorities, estimating Mr. Gerndt's chances to make some additional interest on his war bond purchase through his ownership of Stage Bond, pointed out that the sire won the Santa Anita Derby and the Santa Anita Handicap in Los Angeles in 1938, before retiring to stud. Stage Bond's dam was Authora Naylor, one of the E. R. Bradley's finest mares. And if Mr. Gerndt doesn't want to race his horse, they said, there ought to be plenty of buyers available.


QUIMBY PUMPS
SCREW PUMPS
CENTRIFUGAL PUMPS
CHEMICAL PUMPS
ROTEX PUMPS
... a Quimby Pump for every purpose
● Skilfully designed for efficiency and easy maintenance
● Generously proportioned for strength and long life
● Ruggedly built for dependability in emergencies
PORTER
QUIMBY PUMP COMPANY
INCORPORATED
Division of H. K. PORTER COMPANY, Inc.
GENERAL OFFICES PITTSBURGH (1), PENNSYLVANIA
FACTORIES PITTSBURGH AND BLAIRSVILLE, PA
NEWARK AND NEW BRUNSWICK, N. J.

Manpower Stabilization

A conference on Manpower Stabilization will be sponsored by the Personnel Division of the American Management Association, September 28, 29, and 30 at the Hotel Pennsylvania, New York City. Top officials of the War Manpower Commission and the War Labor Board will address the sessions which are expected to draw an attendance of 2,000 industrial executives from all sections of the country.

Sessions have been planned under the direction of Lawrence A. Appley, Vice President of the Association's Personnel Division and Deputy Commissioner and Executive Director of the War Manpower Commission. Mr. Appley will speak at one of the feature sessions of the conference, in company with such other war manpower figures as Major General Lewis B. Hershey, Director of the Bureau of Selective Service; Mrs. Anna Rosenberg, War Manpower Commission Director of Region II; and other industrial members of the Commission's national organizations.

Among other speakers will be George W. Taylor, Vice Chairman of the War Labor Board, who will discuss "Problems and Policies of the War Labor Board"; Eric A. Johnston, President of the Chamber of Commerce of the U. S., whose topic will be "The War Effort and Industrial Relations"; Paul Hoffman, President of the Committee for Economic Development, and President of the Studebaker Corp., who will talk on "Industrial Relations Problems of the Postwar World."

At one session there will be a panel discussion of the subject, "Toward a National Labor Policy," of which Cyrus Ching, Director of Industrial Relations of the U. S. Rubber Company, will be Chairman. Addressing themselves to this topic will be Almon E. Roth, representing Management; Wayne E. Morse, Government; Van A. Bittner, for Labor, and Elmo Roper, for Public Opinion.

At other sessions such subjects will be discussed as "Current Issues in Collective Bargaining," "The Present and Future Status of the Personnel Profession," "Development and Wartime Realignment of Personnel Departments," "Effects of a National Service Act," "Implications of the Smith-Connally Act," "Wage and Salary Adjustment," "Problems of Supervision in Wartime."

British to Print More Newspapers

An 11% increase in the newsprint ration for British daily and Sunday newspapers will be put into effect on September 27, it has been learned. The increase has been granted specifically to make more newspapers available to the fighting forces. The additional newsprint must be used for printing more copies and not for extending the size of papers, which are now four to six pages as against twenty to thirty-six before the war.

Under the existing rationing scheme British newspapers are difficult to buy at random, as sales are very largely restricted to standing orders. The shortage has been particularly felt among troops in remote camps or on the move, and it was to remedy this, a government official said, that the 11% newsprint increase was allowed.

"It is fully realized that an adequate supply of news is essential to the welfare of service men and women at home and abroad, and publishers will be urged to find ways and means of supplying them with the extra papers printed," he said.

Emeloid Alloy Plastics

What is said to be something entirely new in plastic has just been developed by The Emeloid Co., 287 Laurel Avenue, Arlington, N. J.

This new product is known as Emeloid.

It is claimed to be a "controlled" plastic, capable of possessing varied controlled characteristics similar to those brought about in steels when treated with different alloys.

As a result, it is possible to obtain in this new plastic hardness, softness, elasticity, toughness, freedom from magnetic attraction, etc., or a combination of same.

It can be had in clear or assorted colors.

It is claimed that by the introduction of Emeloid, the use of plastics has been greatly extended, replacing metal in many cases.

It is said to be capable of being formed, molded, shaped, cut, sheared, sawed, punched, pierced, stamped, polished, drilled, machined, lithographed and printed. It is light in weight and obtainable in several grades.

Taggart Corp. Builds New Dam

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., September 13, 1943.—The Taggart Corporation is constructing a new coffer dam at the Newell street end of the concern's power dam which extends across the river to its paper and bag mill on Main street. For a number of years the traction company had its power house, for the generation of current for its line at the point in Newell street where the coffer dam is being built, but sold the power house and water rights to the Taggart Corporation when it ceased operation. Last spring the high water washed out some of the power house walls menacing the future of the power dam in seasons of floods. To eliminate this menace the Taggart Corporation is now installing the coffer dam but after the war plans to build a new power house there with sufficient generation to care for the needs of its mills.

SOYA PROTEINS

For The Paper Industry

PROSEIN*

NOW AVAILABLE

—mechanically refined soybean protein adhesive product. For use in paper coatings, extending casein in paper coatings, washable wallpapers, sizes, emulsifying and stabilizing waxes, surface sizing and laminating paper. Currently available without priority. Contracts offered.

ALPHA PROTEIN*

—our total production of Alpha Protein, the chemically isolated soybean protein, is temporarily required for direct war uses and contract commitments.

*TRADE MARK REGISTERED U. S. PAT. OFF.

★ THE GLIDDEN COMPANY ★

SOYA PRODUCTS DIVISION - 5165 W. MOFFAT ST., CHICAGO, ILL.

Paper Scarcity Increases

INDIANAPOLIS, Ind., September 20, 1943—The local paper market last week appeared to be little changed from that of the last month. There is considerable scarcity of some of the more wanted items and this likely will continue during the winter and perhaps until after the war. There is nothing now to indicate any alleviation of the condition.

Demands on the paper industry from government sources continue to increase. This is particularly noticeable in the container and heavy wrapping paper grades. Production in Indiana mills mostly is confined to these grades and with the heavy concentration of defense industries in the state the mills are receiving as much of the business as they can absorb and more than can be taken care of with the raw material situation such as it is.

Cooler weather during the last week saw a decline in demand for summer specialties, but the level is more than that of a year ago, largely due to the fact that the housewives are using many of the strictly summer items to replace their diminishing linens.

Newsprint demand continued heavy, with Indiana papers taking their quotas and turning down new advertising. Many have been forced to curtail the lineage of old customers.

In spite of all the publicity they have issued, the paper stock houses in this section are finding it difficult to secure adequate paper waste. The flop in the collections last year when warehouses were flooded and mill demand became poor, has caused some lethargy on the part of the general public in saving paper. However, collections are increasing slowly and mill demand is strong. Local warehouses are short of help for collecting. A strong demand developed last week for rags of all kinds. Prices were unchanged.

No matter how different your paper finishing problem may be, there is an Appleton Filling to fit your requirements and give you long service.

Eastern Sales Representatives

CASTLE & OVERTON, Inc., 630 Fifth Avenue, New York

To Loan on Broader Basis

WASHINGTON, D. C., September 20, 1943 — Government - guaranteed V-loans will be made available to war contractors and sub-contractors on a much broader basis than previously, effective immediately, according to a joint announcement by the agencies concerned, War and Navy, Maritime Commission and Federal Reserve Board.

The plan is designed to assure contractors that their working capital invested in war production will not be frozen in the event of contract terminations, it was stated. Interest on loans guaranteed under the new program will be assumed by the Government on termination of contracts, as under present V-guarantees.

The decision to broaden industrial credit facilities was made, it was explained, to head off any war output lag which might ensue from uneasiness on the part of contractors that their capital might be tied up in sudden cancellations, incident to swift war changes.

In the past V-loan advances have been generally restricted to working capital needs in war production. The broadened plan will be aimed at giving contractors use of their own working capital immediately upon termination of their contracts, through facilitating bank advances at once.

At the same time the services stressed that cancellations must not be construed as the beginning of a general war production curtailment. Changes of war plans, it was explained, necessitate shifts in material requirements and production involving rapid decisions, as distinguished from earlier phases of production.

PAPER
TRADE JOURNAL
This Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

Vol. 117 September 23, 1943 No. 13

COMING EVENTS IN PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Palmer House, Chicago, September 21-24, 1943.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

MANPOWER AND PRODUCTION

The satisfactory progress of the war is highly important. A high level of production and distribution to maintain a strong home front is alike essential and a better balance is urgently needed. Comment attributed to some returning members of the Congress to the effect that their constituents have no criticism at the manner in which the war is being conducted but are dissatisfied with the work of some government agencies, is apparently shared by a relatively large number of citizens. The fuel, and price administration agencies are the chief centers of criticism and there should be found ways to adjust even asserted wartime shortage of food and fuel on a more equitable rationing basis. Evidently, too fast an adherance to a theoretical distribution system for civilians and not enough willingness to readjust conditions from time to time to meet shifting circumstances, is one cause of unnecessary inconvenience and hardship along the extensive home front. Unduly large commitments for global aid are also cited as creating hardships to the home front.

The manpower situation must continue to be the greatest problem for the duration of the conflict. Some critics of the manpower agency assert that it is less a question of supply of manpower than it is of manpower distribution. The Baruch report seems to be the only comprehensive study of this vital factor. A more realistic and practical handling of vital economic factors is clearly worth making to achieve a more satisfactory balance in the administration's controlled economy. Industrial production remains high although some lines have declined from peak levelts, it is pointed out in the current issue of the *Business Bulletin* issued by the La Salle Extension University of Chicago. The *Bulletin* states that "Some slowing down in the production of military equipment and supplies, with relative stability among civilian industries, has characterized industrial activity during the last month. The change in the general average has not been great, and total output each week is still close to the highest peak ever reached. The outlook during the fall months is for industrial production at about the present rate with the possibility of some further advances if additional workers can be found to turn out the goods that are needed."

In commenting on the urgency of manpower problems the *Bulletin* goes on to say that "The current trend in production indicates that another phase of the war production program has become more prominent. It is the problem of getting enough workers to meet the high schedule of production that has been set. When the war program started, the most critical problem was that of plant construction, for many new factories had to be built and many other factories had to be converted to war work. That phase of the program was finished several months ago, and the volume of new engineering construction has been declining for over a year. The second critical problem was that of raw materials. Increased productive capacity and allocation of all available materials to most essential purposes have largely solved that problem, although even the greately expanded output of such essential materials as the special types of steel, aluminum, magnesium, and other materials, is rapidly being used up. Little surplus will be available for civilian use as long as the war demands remain large."

In its analysis of factory employment the *Bulletin* states in part that, "The very slow increase in the number of persons working in factories reflects the difficulty in finding enough workers. During the last three years the number of factory employees has risen from about 10,000,000 to about 16,000,000. That number has remained about the same since the first of the year, but it is somewhat greater than it was a year ago. Another factor which limits the expansion of factory output is the high turnover rate. In many factories the rate is so high that a new worker must be hired each year to replace every person in the working force. This high turnover rate reduces efficiency and is one important reason why industrial production is kept from rising as rapidly as it otherwise would. Although production has been slowing down, total factory output is about 12% higher than it was a year ago. The variations among different industries and among individual companies within each industry have become more marked than previously. As is to be expected under the war production program, the durable goods industries have increased output much more than have others. The seasonally adjusted index prepared by the board of governors of the Federal Reserve System has advanced to 201, as compared with 176 a year ago and an average of 100 during the years 1935-1939. The previous peaks

were 114 in 1929 and 121 in 1937. The highest ever reached was in the late spring of this year when the index was at 203."

In its analysis of income of businesses and individuals the *Bulletin* states that, "Major groups which have had large reductions in income during the last year include many office workers, salesmen, professional people, and owners of businesses, especially the owners of the smaller companies and individually owned enterprises. Earnings of the large companies have been maintained fairly well, and cash dividends paid to stockholders this year have been about the same as they were during the first part of last year. Although no complete figures are vailable, the earnings of smaller companies have probably declined due to higher taxes and to the difficulties in getting enough materials and labor to keep operating at full capacity."

G. W. Sisson Jr. Celebrates 81st Birthday

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., September 20, 1943—George W. Sisson, Jr., president of the Racquette River Paper Company, celebrated his 81st birthday here last week. He is a former president of the American Pulp and Paper Association and is internationally known as an authority on pulp and paper making. He has toured Norway, Sweden and Finland where he studied operations. He is also former president of the American Jersey Cattle Association and is a national and international authority on cattle breeding. Mr. Sisson is also president of the board of visitors of the Potsdam State Teachers College.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1943		Corresponding Weeks—1942	
Aug. 7	89.8	Aug. 8	81.4
Aug. 14	91.6	Aug. 15	77.5
Aug. 21	91.1	Aug. 22	81.2
Aug. 28	91.5	Aug. 29	83.3
Sept. 4	91.4	Sept. 5	83.3
Sept. 11 (Holiday Sept. 6)	*75.7*	Sept. 12	*70.3*

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1942	104.5	103.9	102.9	100.4	95.3	87.4	75.8
1943	87.2	88.9	89.5	88.7	91.5	86.5	84.4

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1942	80.8	82.8	90.6	86.9	80.1	90.4
1943	*91.2*	....	....	....	....	....

COMPARATIVE YEARLY SUMMARIES

	1936	1937	1938	1939	1940	1941	1942	1943
Year to Date	77.9	86.4	68.9	78.8	86.2	84.5	92.6	*88.3*
Year Average	80.4	79.8	71.5	83.4	85.6	97.4	90.4	...

*Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1937	83	89	89	91	88	80	69	77	72	70	57	47	75
1938	56	63	63	60	60	59	59	60	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	94	96	94	89	96	..	..	..	..	..

Week ending Aug. 7, 1943—94
Week ending Aug. 14, 1943—98
Week ending Aug. 21, 1943—95
Week ending Aug. 28, 1943—96
Week ending Sept. 4, 1943—97
Week ending Sept. 11, 1943—*83*

†Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

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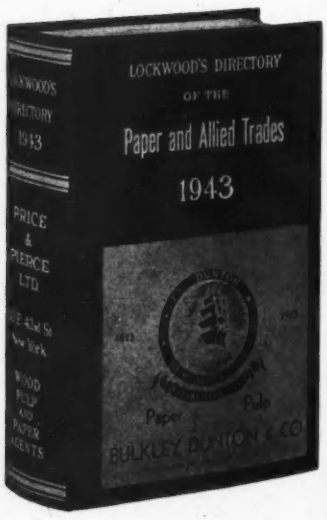

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Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Specific External Surface of Pulp*

TAPPI Suggested Method T 226 sm-43

This method is suitable for determining the specific surface of chemical pulps, groundwood, wood flour, and similar materials.

Specific surface is defined as the exposed area in square centimeters per gram of moisture-free sample and provides a measure of the degree of fineness or fibrillation.

Apparatus

1. The reaction apparatus is shown in Fig. 1. The reaction vessel *A* is made from a 500-ml. Erlenmeyer flask. The mouth is enlarged to 6.5 cm. to permit insertion of a glass propeller, *B*, about 6 cm. in diameter. Two indentations, *C*, are made in opposite sides near the bottom to direct the swirling liquid downward. A glass tube, *D*, is inserted tangentially near the bottom at an angle of about 45° to hold a thermometer, *E*, (0-50° C., graduated to permit estimation to 0.1° C.) in position, so that its bulb is immersed during the reaction. A tight rubber washer on the stem of the thermometer prevents the bulb from touching the bottom, which would thus form a pocket and trap and hold the fibers. A small vertical motor and chuck, *G*, is mounted to rotate the glass propeller shaft at about 200 to 300 r.p.m.

There are also included two burets, preferably of 25 ml. capacity with bell mouths for easy filling, one with an extension to the delivery tip; a removable support (*K*) for the flask; and a funnel (*H*) having a capacity of 30 ml. or more, with a large stopcock to which preferably a glass rod (*J*) is fused so as to make its opening and closing quick and easy.

All this equipment is mounted on a heavy stand by means of suitable clamps, the burets preferably being held by spring clamps so that they may be easily moved up and down or removed.

2. Hot plate (for silvering solution), preferably with a temperature control. A variable-speed (60 r.p.m. and over) motor-driven, small glass propeller is mounted above the plate.

3. A 500-ml. stoppered graduated cylinder.

4. Graduated cylinders of 10, 25 and 100 ml. capacity, unstoppered.

5. One or two Pyrex, fine-porosity (or Jena 1G4) fritted-glass filtering crucibles, large suction flask, and rubber ring for crucible and aspirator.

6. Powder funnel, 10-15 cm. in diameter.

7. Platinum or platinum-iridium dissecting needle.

8. Rubber policeman with obliquely cut sharp end.

9. A stopwatch or stopclock, preferably 100 seconds per revolution.

10. Miscellaneous common laboratory equipment, including balance sensitive to 0.1 mg., oven regulated at 100-105° C., wash bottle, three or four 250-ml. beakers, a 250- or 500-ml. Erlenmeyer flask, weighing bottle, desiccator, Bunsen burner, tripod, and wire gauze.

Reagents

Prepare the following from C.P. chemicals and distilled water:

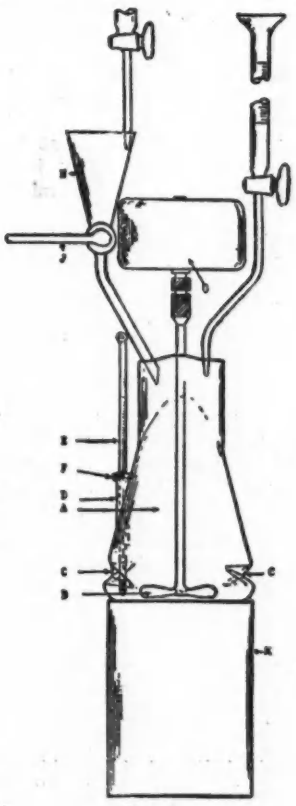

FIG. 1

Specific Surface Reaction Apparatus—Schematic Diagram.
A—Reaction Vessel; B—Glass Propeller; C—Indentations; D—Glass Tube to Hold Thermometer in Position; E—Thermometer; F—Washer; G—Motor; H—Funnel; J—Glass Rod; K—Support.

* This method is suggested by the Pulp Testing Committee as being the most suitable to date. It is not, however, a TAPPI Standard. Criticisms are earnestly requested and should be sent to R. G. Macdonald, Secretary, Technical Association of the Pulp and Paper Industry, 122 E. 42nd St., New York 17, N. Y.

A. *Silvering Solution.* Weigh out approximately 20 grams of $AgNO_3$. Dissolve in about 500 ml. of water in a 2-liter beaker. Add 25 ml. of conc. NH_4OH and then very carefully add an additional amount, drop by drop, until the *brown* precipitate only just disappears. If the silvering solution is too alkaline—i.e., perfectly clear—very troublesome debris will be formed during silvering, so that any excess ammonia should be neutralized by adding a little more $AgNO_3$ solution until a very faint cloudiness is visible. It is very important to prepare the solution correctly.

Dilute to 2 liters and store in a dark, stoppered bottle. This solution usually keeps quite well for a month.

B. *0.5* N *Potassium Permanganate.* Weigh out 31.6 grams of $KMnO_4$; dissolve and dilute to 2 liters. There is no need to accurately standardize this solution.

C. *0.5* N *Hydrogen Peroxide.* Measure out 12.5 ml. of 30% H_2O_2 solution (which should be stored in a cold place) and dilute to about 500 ml. Add 1 ml. of 2 *N* H_2SO_4. Before use, standardize 20 ml. carefully against the $KMnO_4$ solution, add the calculated necessary quantity of water (about 45 ml. of water for each 0.2 ml. excess of $KMnO_4$ used over 20 ml.) and recheck 25 ml. with the $KMnO_4$ solution. Any small difference—e.g., 0.2 ml.—in the volume of 0.5 *N* $KMnO_4$ finally used to reach the end point with 25 ml. of 0.5 *N* H_2O_2 solution, can be allowed for. (*See* note 2 under the testing section of the procedure.)

D. *Sulphuric Acid,* approximately 2 *N*. Measure out 55 ml. or weigh out 100 grams of conc. H_2SO_4 and dilute to 1 liter.

E. *Sodium Borate Buffer Solution.* Weigh out 25 grams of $Na_2B_4O_7.10H_2O$ and dissolve in about 800 ml. of water, warming if necessary. Add 20 ml. of 4% NaOH solution and dilute to approximately 1 liter.

F. *Washing Solution* (prepared just before use). Add 25 ml. of 0.5 *N* H_2O_2 and 10 ml. of buffer solution to 90 ml. of water.

Caution: As this method is based on a catalytic reaction, scrupulous cleanliness is essential, and the purity of the distilled water should be unquestionable. Especial care should be used in cleaning the reaction vessel, propeller and thermometer after each test, as the presence of a single drop of the end product of the previous reaction will cause a very substantial reduction in the succeeding test.

Test Specimen

Measure or weigh out enough pulp to have an estimated area of between 1000 and 2000 sq. cm., and at the same time and by the same procedure measure or weigh out a similar quantity of pulp to be dried and weighed to get the moisture-free weight of the sample. The following table may be used to estimate the quantity of pulp to be used, but the quantity actually used is not at all critical.

	Area, *sq. cm. per gram*	Test Specimen, *mg.*
Unbeaten pulp	7,000- 15,000	100-250
Groundwood	15,000- 25,000	50-150
Beaten pulp	10,000- 30,000	50-200
Headbox stock	20,000-100,000	20-100

Unless already defibered, thoroughly and completely defiber the sample of pulp to be silvered, but with the minimum amount of necessary stirring. It is recommended that, for dry pulp, the sample be wetted or preferably soaked for an hour or more, teased apart with dissecting needles, then diluted with a small quantity of water, and vigorously shaken in a 1 by 6-inch test tube. For good results, it is essential to have the fibers completely separated, with no lumps or fiber bundles remaining, as the silvering procedure will serve to stick any bundles even more tightly together.

Procedure

Silvering

Pour the defibered pulp sample for silvering into the filtering crucible, drain by suction and wash with a jet of distilled water. Transfer the pad of pulp to a 250-ml. beaker; then with 2- or 3-ml. portions of water and employing the rubber policeman, rinse the remaining pulp from the crucible into the beaker, using not more than a total of 10 ml. of water for the purpose. Unless the original sample was weighed in dry form, use the same crucible, pour in a corresponding sample of pulp for drying, drain with suction, and carefully transfer all the pulp which can be removed with the dry policeman and needle to a small tared weighing bottle. Dry in the oven, cool in a desiccator, and weigh.

Pour 150-200 ml. of the silvering solution into a 250-ml. beaker and bring to a boil over a burner. As soon as it is boiling, but not before, place the beaker containing the sample on the hot plate, which already has been set at 500-600° F., and pour into it all the silvering solution. Note the time or start a stopwatch. With the motor stirrer stir the pulp and silvering solution briskly for a minute or two, and thereafter continuously but only fast enough to maintain good dispersion. Adjust the temperature of the hotplate so that the solution produces a bubble of vapor now and then. If the solution is kept lower than the boiling temperature, silvering will be considerably prolonged.

Observe the progress of the silvering and when the color of the suspension by transmitted light changes from brown to black and the liquid no longer definitely reflects the brownish cast of the pulp, note the time. If a microscope is available, lift out a few fibers with the platinum needle and examine in a drop of water on a slide, using transmitted illumination. The fibers and fibrils, when silvering is complete, should appear perfectly colorless and, except for a few odd particles, should be perfectly opaque. By this time, also, the blackened pulp will have a greenish cast when viewed by reflected light. Without a microscope, silvering is judged to be complete in about one and one half to twice the time it takes for the last traces of brown color in the suspension to disappear. The total time to silver will vary from 6 to 60 minutes (usually about 15), depending on the purity and reducing properties of the pulp.

Note: The time for silvering is not critical. However, if too short, a percentage of the fibrils will not be completely coated; if too long, probably because of the oxidizing properties of the alkaline solution and air, the pulp will become tender and brittle, and the fibrils will drop off and so may become lost during subsequent handling. Also, the thickness of silver deposited will increase the diameter of the fibrils to a point where their specific surface somewhat increases. Fortunately, pulps which require a long silvering period, as would be expected, appear to be able to withstand the oxidizing action quite well and any embrittlement of the fibrous material does not appear to appreciably affect the results, provided the broken fibrils are not lost during the washing procedure. Even after prolonged silvering, if the silvering solution is properly prepared, the sides and bottom of the beaker should have no more than a light smoky appearance, the bottom having a little heavier coating than the sides.

Washing

When the silvering is complete, pour the suspension into the filtering crucible under suction. Wash any fibers adhering to the sides of the beaker and propeller into the crucible. When the mat of fibers in the crucible is sucked dry, remove the crucible. With the wash bottle, direct a jet of water on the fiber mass to break it up, using about 25 ml. of water; then drain the crucible under suction. Again remove the crucible and add 15-20 ml. of the washing solution; stir the pad slowly with the platinum needle for about 15-20 seconds. The peroxide loosens any debris from the fibers. Drain the mat under suction and then repeat the washing with water. Finally rinse the fibers into the 500-ml. stoppered cylinder. Add a few ml. of water to the crucible and, using the rubber policeman, loosen any material on the sides or bottom of the crucible and add it to the cylinder. Repeat this once or twice until no more material is obtained. Add 25 ml. of the borate buffer solution and then distilled water to the 250-ml. mark.

Measuring

Place the powder funnel in the mouth of the 100-ml. cylinder, both of which previously have been thoroughly cleaned and rinsed with distilled water. Shake the stoppered cylinders and contents end to end vigorously to disperse the fibers thoroughly; then without pause (which would allow some fibers to settle) with a single fast pouring transfer about 50 ml. of the silvered fiber suspension into the 100-ml. cylinder through the powder funnel.

Note: Do not attempt to make any minor adjustment of this volume, as the concentration of the fiber suspensions almost inevitably will be altered.

In a clean beaker or flask, dilute 50 ml. of the borate buffer solution to 500 ml. With this diluted buffer solution, rinse any fibers adhering to the funnel into the cylinder. Pour and rinse the contents of the cylinder into a beaker. This first portion of the silvered fibers is normally not tested because the silvered fibers have such a high specific gravity that they readily sink and it is almost impossible to ensure a proportionate quantity of fiber in the first and last portions. The first and also the last fifth of the contents of the 500-ml. cylinder are held in reserve so that normally only the middle three portions from the cylinder are tested. Shake the stoppered cylinder end

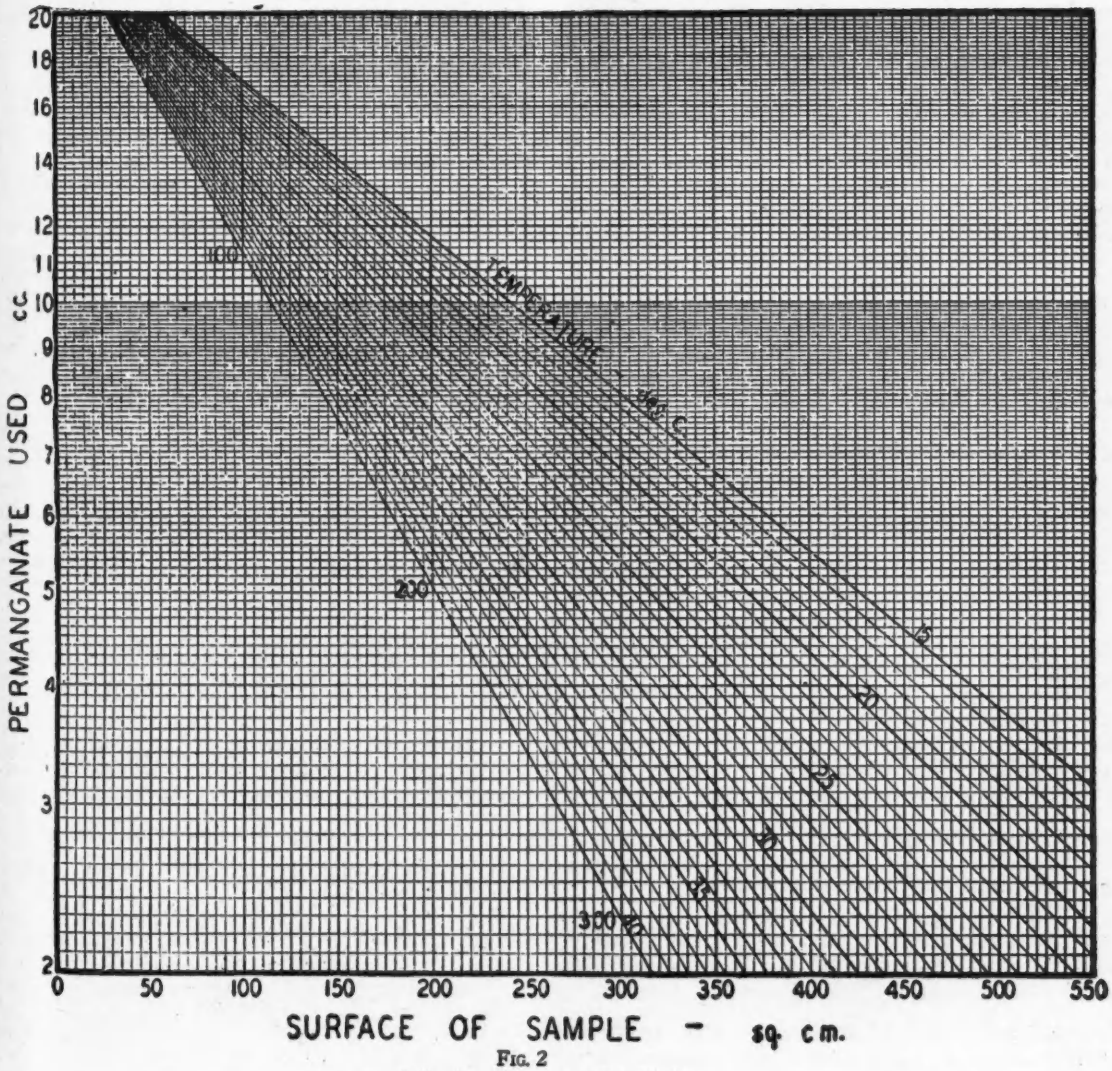

Fig. 2

Calibration Chart for Specific Surfaces

to end, and again without pause pour another portion of about 50 ml. of the silvered fibers through the powder funnel into the 100-ml. cylinder. Read and record the exact volume transferred to get the weight of the fiber being tested.

With the diluted buffer solution, rinse any fibers adhering to the powder funnel into the cylinder and carefully read the new volume. The difference between the volume and 100-ml. gives the amount of dilute buffer solution to be used for rinsing the contents of the 100-ml. cylinder into the reaction vessel and washing down the sides of the latter. Accurately measure out this volume of dilute buffer solution and transfer the silvered fibers to the reaction vessel, after the latter has been thoroughly rinsed with distilled water.

TESTING

Thoroughly clean the rest of the reaction apparatus, using a jet of distilled water and catching the spray in a convenient-sized beaker. Place the flask in position and insert the thermometer. Fill the H_2O_2 buret to the zero mark. Open the stopcock of the buret fully and run in the volume (within a maximum tolerance of $\pm$ 0.2 ml.) found exactly equivalent to 25 ml. of the $KMnO_4$ solution. Start and adjust the speed of the stirrer and after starting the stop clock or watch, exactly 5 seconds later open the cock of the funnel and stir for 100 seconds. During this time, close the cock of the funnel and add to it 15 ml. of 2 *N* H_2SO_4 and fill the $KMnO_4$ buret to the zero mark. When about 50 seconds have elapsed, take the reading of the thermometer to the nearest 0.1° C. Adjust the $KMnO_4$ buret so that its tip is in position for delivery into the flask. When 100 seconds have elapsed, fully open the cock of the funnel, and as soon as the acid has run into the flask, open the cock of the $KMnO_4$ buret and continue to run in the solution until the end point is nearly reached. Then add a subsequent amount, drop by drop, until the solution just turns pink. Note the reading. Repeat the test with two additional portions of the silvered fibers.

Notes: 1. In order to facilitate cleaning the flask later, because manganese dioxide is absorbed by the glass surface and constitutes a potent catalytic inhibitor, it is advisable to run in a few extra ml. of H_2O_2 after equivalence has been reached and speed up the stirrer before stopping it, so as to bathe the sides of the flask with the excess peroxide.

2. In standardizing the solutions, the cock of the H_2O_2 buret should be fully opened and 20 ml. run out at one time at the same rate as for the test conditions. It is advisable also to run a blank with the reaction apparatus, using 90 ml. of distilled water and 10 ml. of buffer solution as a check that, with any corrections made, the quantity of H_2O_2 used corresponds exactly to 25 ml. of the $KMnO_4$ solution.

Report

From the calibration chart, Fig. 2, knowing the temperature of the reaction and the number of ml. of $KMnO_4$ used, calculate the area of each test sample. From the dilution data and volumes used, the weight of each test sample is known. The specific surface of the pulp in square centimeters per gram is then:

$$\frac{\text{Area of test sample in sq. cm.} \times 1000}{\text{Weight of test sample in mg.}}$$

Run at least three determinations and report the average.

Precision

Insufficient data have been secured with the details finally adopted to state the precision with certainty. From the results of the work in general, however, it is expected that two successive tests, including errors in sampling, weighing, etc., should not differ by more than about 5%.

Additional Information

A wide latitude in the choice of equipment, procedure, time of reaction, and strength of reacting solutions, appears possible if the same conditions are followed when the calibration chart is prepared, but the adopted conditions should be meticulously followed once they have been established.

Reference

Clark, James d'A. *Paper Trade J.* 115, No. 1:32-39 (July 2, 1942); *Tech. Assoc. Papers* 25:568-575 (1942).

August Newsprint Statistics

Production of newsprint in Canada during August, 1943, amounted to 259,612 tons and shipments to 260,792 tons, according to the News Print Service Bureau. Production in the United States was 68,011 tons and shipments 65,255 tons, making a total United States and Canadian newsprint production of 327,623 tons and shipments of 326,047 tons. During August, 21,795 tons of newsprint were made in Newfoundland, so that the North American production for the month amounted to 349,418 tons. Total production in August, 1942, was 350,119 tons.

The Canadian mills produced 186,986 tons less in the first eight months of 1943 than in the first eight months of 1942, which was a decrease of eight and seven-tenths percent. The output in the United States was 92,334 tons or fourteen and four-tenths percent less than in the first eight months of 1942, in Newfoundland production was 52,727 tons or twenty-seven and four-tenths percent less, making a total decrease of 332,047 tons, or eleven and one-tenth percent less than in the first eight months of 1942.

Stocks of newsprint paper at the end of August were 56,156 tons at Canadian mills and 13,534 tons at United States mills, making a combined total of 69,690 tons compared with 68,114 tons on July 31, 1943, and 172,271 tons at the end of August, 1942.

WPB Eases Newsprint Use

WASHINGTON, September 19, 1943—Factors which the War Production Board will consider in allowing requests by newspaper, magazine and book publishers for additional print paper tonnage were outlined today.

These factors are specified in supplements to WPB Limitation Order L-140, which covers newspapers; L-244, which covers magazines, and L-245, covering books. The supplements list certain essential facts pertinent to appeals which may be filed by publishers seeking additional print paper above their quotas.

In making the announcement, the WPB explained that the specific subjects listed do not preclude the consideration of other unusual or extraordinary conditions which "may constitute excessive and undue hardships."

It was pointed out that in every case where additional tonnage of paper is recommended, the WPB will compute the amount on the basis of economical usage of paper. Ex-quota paper, it was explained, will be denied to the extent that a publisher can meet his requirements through paper conservation measures. In the case of newspapers, the feasibility of instituting certain economies will be considered in the light of local conditions.

Self-Priming and Other Pumps for Pulp and Paper Processes*

By N. A. Pedersen[1]

Abstract

A description of the applications of self-priming and other types of pumps is given for the conveyance of sulphate black liquor, sulphite pump liquor, high-solids content liquids, and other liquors necessary in the manufacture of pulp, paper, and paperboard.

The pulp and paper industry has the important problem of conveying or pumping liquids, which in its general form, is common to practically all process plants.

While a number of pumping installations might be termed "standard," because there are no troublesome problems involved; we find that the paper and pulp industry has many special pumping applications that require individual treatment and equipment. Among these are the handling of sulphate black liquors and sulphite liquors from evaporators; pumping high concentrations of black liquor in recovery systems; handling condensate from driers and evaporators; pumping white water, coating, bleach solutions, and many other liquids.

Vacuum Boxes

One company was using what might be termed wet-vacuum pumps on the vacuum boxes of their four-drinier machines. These pumps handled both air and liquid, but as they were designed essentially for high-air capacity, the efficiency was poor when pumping liquid. The problem was one of reducing the power used by these wet-vacuum pumps by eliminating the liquid load on them. A study of this led to the installation of a sealed collecting tank between the vacuum box and the vacuum pump. The vacuum pump was connected to the top of this tank so it handled only air while water collected in the bottom. A type DPL self-priming pump was selected to be connected to the bottom of the tank so as to handle the entire liquid load. The self-priming pump was used because it could be operated continuously without requiring a liquid level controller to maintain any minimum head on the pump suction, and because it removed the water as it came to the suction and, at the same time, maintained a seal against the existing vacuum. The anticipated power saving readily paid for the installation. A secondary accomplishment was to increase the air capacity of the vacuum pump permitting higher vacuums on the vacuum box.

Recovery of Felt Shower Water

Another mill presented the problem of recovering water used by the fourdrinier felt shower. The collecting sump was underneath the fourdrinier machine in an inaccessible spot. A vertical pump could not be installed and a gravity-feed type centrifugal pump was in use located in a dry pit, underneath the paper machine, and a few feet from the sump. This pump would lose prime and in addition require frequent opening up and cleaning due to collection of felt and paper fibers. A self-priming pump, type DPL, with open impeller, was installed at floor level, in a convenient location about 20 feet from the machine. This unit operated continuously taking away the water as it collected in the sump.

Similar to this was the problem of pumping white water under several different types of conditions. The general problem, however, was that of supplying a pump which would handle air and foam as well as liquid and which could be relied upon to remove the water when it came to the pump suction. Some installations were connected to overflow boxes, others picked up out of sumps and pumped to savealls, but the DPL self-priming pump solved the problem of eliminating existing troubles caused by air-binding of horizontal pumps and high-maintenance on submerged types of units.

Bleach and Coating-Mixture Pumps

A manufacturer of coated paper was having trouble with a pump used for feeding coating stock to the machines. A gravity-feed horizontal centrifugal pump was in use, but due to the necessity of continuously agitating the coating stock, the liquid had lots of air and foam in it. The pump in service became air-bound frequently, and this resulted in enough variation in flow to cause a serious lack of uniformity in the thickness of the coating. While at first we considered a self-priming pump as the answer to this difficulty, we decided to try a type DL which, while being a gravity-feed type of pump, was still nonair binding due to its special casing construction. This unit was found to handle air and foam with rapid enough recovery so the liquid flow smoothed out and a satisfactory coating was obtained.

An unusual application but possibly a general problem was brought to us by one paper manufacturer who made his own bleach solution. A concrete pit was located below floor level and this was filled with caustic soda. A cast iron centrifugal circulating pump was located on the floor level and caustic soda was recirculated from the pit to a chlorinator and back to the pit. Characteristically the caustic would foam upon agitation, and the regular pump would air-bind when foam entered causing the liquid flow to stop. This permitted the chlorine to work down the discharge line and into the pump resulting in frequent pump replacement. The cast iron self-priming pump which was purchased for this job did not air-bind, and by maintaining a continuous flow has prevented the chlorine from direct entrance to the pump and in this way eliminated the pump corrosion.

Condensate due to its temperature and flashing of steam and due to the non-condensable gases which it

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

[1] Sales Manager, The La Bour Co., Inc., Elkhart, Ind.

carries is another pumping problem, where LaBour self-priming units have done the work under conditions of minimum submergence, where ordinary centrifugal pumps were in trouble.

Black Liquor Pumps

A large field of use where both self-priming ability and resistance to corrosion are necessary is in the handling of concentrated liquors from evaporators. The greatest number of pulp mill applications of this kind seem to be for black liquor pumping.

Considering the corrosive problem of this application, we are probably pumping unknown combinations against which we have largely the matter of experience as a guide. In the beginning, the handling of caustic soda liquor of the strength employed in making soda pulp seemed to indicate cast iron as a suitable material for black liquor pumps. For some reasons; possibly temperature; perhaps attributable to the lignin and residual organic matter in the black liquor, cast iron did not give satisfaction in the pumps. This led to experiments with various alloys containing nickel and resulted in the recommendation Elcomet K alloy for pumps on black liquor service. Many Elcomet K pumps are in use with satisfactory results.

The continuous removal of concentrated liquors and condensate from the vacuum effects of multieffect evaporators has fully utilized the advantages of self-priming centrifugal pumps for such service. In this application the pumps operate continuously keeping the withdrawal in balance with the feed and maintaining a seal against air leakage so that the proper operating vacuums may be held.

Experience has indicated correct principles to apply in engineering pump installations of this kind so as to assure satisfactory results. Factors of safety varying from 1.2 to 1.8 are used to insure proper capacity and to take care of excessive foaming, noncondensable gas, and flash vapors which might reduce the capacity below the design limits but still leave enough capacity to meet actual requirements for liquid removal.

The DPL pump supplied for evaporator service is recommended for vacuums of 20 inches Hg at the pump. As many effects carry vacuums much higher than this, it is necessary to compensate for excess over 20 inches Hg, by dropping the pump below the liquid level in the evaporator. The amount of this compensation based on a sp. gr. of 1 is generally figured at 1.3 feet per each inch Hg over 20 inches vacuum. This provides a little margin of safety over a theoretical compensation of 1.13 feet per inch Hg. Suction lines from evaporators to the pumps should be as short and direct as possible and should be oversize to prevent any bottleneck effect which would interfere with the free flow of liquid to the pump suction. Pump glands should be carefully maintained, and on high vacuum installations these are frequently liquid or water sealed to prevent possible air leakage at this point.

In normal operation the pump runs continuously and lowers the level in the down-leg suction line, until a point of balance exists which as referred to above keeps liquor removal in balance with the feed.

From the foregoing it would seem that the main problem of pump selection for evaporators is one of being sure that the pump is amply large. While this is true, it has also been found that pumps can be too large, and this is most important where the liquids foam readily. Too large a pump on such liquors can result in so much internal pump cavitation and agitation of the liquor, that pump and lines fill with foam, and the unit stalls. Therefore selection of a suitable pump is not just a case of being sure that the pump is overcapacity.

The more recent installations of recovery systems depend upon high concentrations of black liquor up to 70% compared wtih approximately 50% from evaporators alone and the problems of pumping this liquor involve some additional consideration. We still have the problems of corrosion resistance, gas, and foam, but, in addition, we have viscosity and abrasion resistance.

In the sulphate pulp process sodium sulphate salt cake is introduced into the liquor resulting in abrasive salt particles in suspension. This brings in the factor of additional wear. Fortunately the nickel-chrome alloys used for their corrosion-resistant properties have good wear resistance. These metals therefore can be used for the pump liquid ends; and the pump shafts, at least through the glands, can be stellited for additional protection against wear.

Viscosity increases greatly with the increased concentration and the temperatures of liquid must be somewhat higher than when pumping the 50% concentration. It seems that 200-210°F. is necessary to maintaining a suitable pumping viscosity on 65%-70% concentrations.

Due to viscosity of the concentrated black liquor a special design of pump which gives the nearest approach to streamline flow with a minimum of internal disturbance and friction loss is desirable. Instead of valving the pipelines for controlling flow, a variable-speed drive has apparently been found better. This may be a magnetic or hydraulic clutch, slip-ring motor, or other type of variable-speed control. By regulating the flow through variation of pump speed, the lines to and from the pump are kept open thus insuring a free flow to the pump and minimizing friction loss in the entire system. Remember that with the high viscosity of the concentrated black liquor, friction loss amounts rapidly, and satisfactory operation requires large lines with a minimum of restriction to flow.

Design Characteristics

The self-priming centrifugal pump type DPL has two discharge throats instead of one. These connect to a chamber called a separator. When handling air the pump depends upon liquid for sealing the impeller and is designed to retain a sufficient amount of liquid to maintain such a seal. When the pump is priming or handling air, the impeller blades mix air and liquid in the casing and discharge this from the first throat into the separator. In this chamber both space separation and centrifugal action cause the air to concentrate and free itself from the liquid which returns to the pump through the second throat to be used over again. This recirculation of liquid continues until the pump picks up a solid stream. At this point the action in the second or bypass throat reverses, and the pump discharges from both throats. The balanced recirculation is accomplished entirely by pump design and hydraulic pressures without the use of internal valves or other mechanisms and this has led to the term "hydro-balance principle" which describes the LaBour self-priming pump.

The type DL pump is designed for location below the liquid supply. It is a modification of the DPL in that it has a double-discharge casing but does not

have a separator chamber nor is it designed to retain any sealing liquid. The casing has its two discharge throats joined together by a Y-shaped casting and enough circulation can take place to compensate for air entering the suction so as to make this pump non air binding.

The DL is now being replaced by the type Q which is a gravity-feed multithroat casing unit but of such design as to greatly increase the pumping efficiencies without sacrificing the open-impeller construction or large clearances standard in all LaBour pumps. This pump is nonair binding.

Types DPL, DL, and Q pumps have been used for concentrated black liquor pumping. Of these units the type Q with its special multithroat casing design offers the minimum of disturbance to the liquor in passing through the pump and keeps internal friction losses at the lowest possible level. This pump, while a gravity feed unit, is nonair binding and therefore can handle foam or interrupted flow of liquid without stalling. Comparison of results on the Q pump with installations of DL and DPL units show reduced power consumption and better general results.

Conclusion

When I was first invited to prepare a paper on such pump applications as we handle, I think your chairman had hopes that one angle of my talk could be devoted to materials of construction and possible substitutes which could be used for many of the critical materials. Our company is probably just one of the many that has, and is, carrying on research in this direction. Unfortunately, we have nothing as yet which we can present as a suitable substitute for those applications on which special nickel-chrome alloys have been used.

One TAPPI member has taken cast iron which normally showed signs of excessive wear or corrosion in three weeks, and by stainless steel spraying with a metallizing gun, has secured six months service life with the original coating and the pump is still in service. This same company is now conducting experiments on chrome-plated pumps, using cast iron as a base material. As yet it is too early to report results on this trial. There is a recognized weakness in spraying or plating so that, while such ideas can be utilized by maintenance departments, they do not lend themselves to use by the equipment manufacturer, unless he can make it plain to his customers that such construction is one of expediency only and not to be considered as a permanent design or construction.

Further Experimental Study of Beater Practice in the Manufacture of Offset Papers*

By Charles G. Weber[1], Merle B. Shaw[1] and Martin J. O'Leary[1]

Abstract

Seventy-three experimental papers have been made in the Bureau's semicommercial mill in studies to determine the relationship between the mechanical beating of the fibers and the properties of offset papers made from them. A previous publication contained the data for the wood-fiber papers. The present article reports an extension of the work to include papers made of rag fibers, and mixtures of rag and wood fibers. The rag fibers responded to beating differently in some respects than wood fibers.

Old rags withstood the prolonged beating required for the development of maximum strength and optimum formation without the adverse effects of such treatment noted in the preparation of wood fibers. All of the rag-fiber papers had appreciably lower expansion than wood-fiber papers of corresponding bond strength, and the mixture of old-rag fibers with strong sulphite, in equal proportions, produced papers with folding endurance approaching the average for the two pulps. Papers made of the sulphite pulp and wood-fiber filler pulp in like proportions have been found to have fold values little above that of the weaker pulps.

The addition of clay filler to a sulphite paper lowered the expansion in the machine direction but did not lower it appreciably in the cross direction.

For more than 10 years, the National Bureau of Standards and the Lithographic Technical Foundation have cooperated in research on the paper requirements of the offset lithographic process. After finding properties of paper desirable for offset printing, papermaking studies were made to find how to obtain the properties. The relationship between the beating of the fibers and the characteristics of papers made from them under controlled conditions was determined.

The experimental papers were made in the Bureau's semicommercial paper mill. The fibers studied comprised various types of commercial wood pulps, waste papers, and new and old rags, all of which were used singly and in combinations. The beating of the various fibers and selected combinations of them was subjected to controlled variations and the resultant effects on the properties of the papers were determined by tests of the finished papers. The relationships thus obtained for the wood fiber papers were published in a previous report *(1)*. Data on rag fibers and further data on some wood fibers are contained in this article together with limited data on the effects of clay filler and some information on the application of the results to the printing of war maps.

The research on lithographic papers were carried on with the assistance of the Lithographic Technical Foundation, and the studies were planned with the counsel of an advisory committee of technical representatives of that organization, under the chairmanship of R. F. Reed, Director of Lithographic Research, University of Cincinnati.

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

[1] Member TAPPI; U. S. National Bureau of Standards, Washington, D. C.

TABLE II.—DATA ON BEATING AND CONDITION OF STOCK FOR DIFFERENT TYPES OF FURNISHES IN THE STUDY OF EXPERIMENTAL OFFSET PAPERS

Paper machine run number	Beater furnish: Fiber (pulp)	Rosin [1], %[2]	Alum [1], %[2]	Position of beater roll after beating time of— 0.0 hr.[4]	0.25 hr.[5]	0.5 hr.	1.0 hr.	1.5 hr.	2.0 hr.	2.5 hr.	3.0 hr.	3.5 hr.	4.0 hr.	4.5 hr.	5.0 hr.	5.5 hr.	6.0 hr.	6.5 hr.	7.0 hr.	7.5 hr.	8.0 hr.	8.5 hr.	9.0 hr.	9.5 hr.	Freeness of stock at completion of beating: A	B	Jordan setting	Acidity at head box quinhydrone method: pH	Freeness of stock at head box[6]: A	B	Sheet shrinkage in width as formed[7]: %	Distance water was carried beyond 2nd slice[8]: in.
1243	100% sulphite wood	1	1.0	+10	+10	+3	+3	+3	...	...	...	...	...	...	...	...	...	..	..	..	..	..	..	..	9	10	+8	4.9	16	19	1.9	8
1244	pulp, no filler	1	1.0	+10	+10	+3	+3	+2½	+2½	+2	+2	+1½	+1½	+1	+1	+1	...	..	..	..	..	..	..	..	15	17	+8	4.9	33	39	2.5	13
1245		1	1.0	+10	+10	+3	+3	+2½	+2½	+2	+2	+1½	+1½	+1	+1	+ ½	+ ½	0	0	—½	—½	—1	—1	—1	63	74	+8	4.9	111	129	4.7	43
1311	100% No. 1 white	1	1.2	+10	+10	+5	+4½	+4	+3½	+3	+2½	+2	+1½	+1	+ ½	+ ½	...	..	..	..	..	..	..	..	195	222	+8	5.2	480	620	3.8	72
1310	shirt cuttings	1	1.2	+10	+10	+5	+4½	+4	+3½	+3	+2½	+2	+1½	+1	+ ½	+ ½	0	0	0	—½	—½	—½	..	..	720	850	+8	5.3	1080	1220	4.7	(9)
1308	Old rags — 66⅔%	1	1.2	+10	+10	+3	+1	0	— ½	— ½	— ½	— ½	...	..	...	...	...	..	..	..	..	..	..	..	216	252	+8	5.0	500	630	2.5	(9)
1307	No. 1 old white,	1	1.2	+10	+10	+5	+4½	+4	+3½	+3	+2½	+2	+1½	+1	+ ½	+ ½	0	0	0	—½	—½	—½	..	..	203	242	+8	5.0	575	690	2.5	(9)
1306	33⅓% twos & blues	1	1.3	+10	+10	+5	+4½	+4	+3½	+3	+2½	+2	+1½	+1	+ ½	+ ½	0	0	0	—½	—½	—½	..	..	550	630	+8	4.8	1070	1200	2.8	(9)
1312	50% sulphite wood	1	1.2	+10	+10	+3	+3	+3	...	...	...	...	...	..	...	...	...	..	..	..	..	..	..	..	59	70	+8	5.1	130	150	2.8	40
1313	pulp, 50% old rags	1	1.2	+10	+10	+3	+3	+2½	+2½	+2	+2	+1½	+1½	+1	+1	+1	...	..	..	..	..	..	..	..	120	140	+8	4.9	210	245	3.1	60
1314	(twos & blues)	1	1.1	+10	+10	+3	+3	+2½	+2½	+2	+2	+1½	+1½	+1	+1	+1	+ ½	0	0	—½	—½	—1	—1	—1	330	385	+8	4.8	640	775	4.4	(9)
1339	100% sulphite wood	..	..	+10	+10	+3	+3	+2½	+2½	+2	+2	+1½	+1½	+1	+1	+1	...	..	..	..	..	..	..	..	16	19	+8	5.1	42	49	3.1	12
1340	pulp, 15% filler (clay) added	..	..	+10	+10	+3	+3	+2½	+2½	+2	+2	+1½	+1½	+1	+1	+ ½	+ ½	0	0	—½	—½	—1	—1	—1	68	81	+8	4.8	114	132	4.7	42

[1] Rosin size was added 1 hour, and the alum ½ hour before stock was dropped to chest.
[2] Based on dry weight of the fiber. [3] Based on dry weight of the fiber and rosin.
[4] Lighter-bar up. [5] Lighter-bar down.
[6] Williams precision freeness tester.
[7] Change in width of dried sheet as wound on reel from width when formed.
[8] Measurement indicates point at which drainage of water from table rolls stopped.
[9] To suction box.

TABLE III.—PROPERTIES OF EXPERIMENTAL OFFSET PAPERS

Paper machine run number	Fiber furnish (pulp)	Beating time, hr.	Jordan setting	Weight, 25 x 40 inches, 500 sheets, lb.	Thickness, in.	Density, lb./ft.[3]	Opacity, % contrast ratio, %	Bursting strength, pts.	Ratio of burst to weight, %	Tensile properties: Breaking load Mach., kg.	Breaking load Cross, kg.	Elongation at rupture Mach., %	Elongation at rupture Cross, %	Tearing resistance Mach., g	Tearing resistance Cross, g	Folding endurance (Schopper) Mach., double folds	Folding endurance (Schopper) Cross, double folds	Expansion per 15% humidity variation, direction Mach., %	Expansion per 15% humidity variation, direction Cross, %	Curl, deg.	Smoothness (Bekk), sec.	Air permeability (cm^3/m^2)/sec., g/cm^3	Oil penetration, sec.	Sizing value (dry-indicator method), sec.	Bond test, lb.
1243	100% sulphite wood pulp	1.5	+8	56.1	0.0041	47.3	76	21	37	4.4	2.5	2.5	3.8	148	150	141	33	0.066	0.172	52	19	1236	20	49	44.3
1244		5.5	+8	55.9	.0039	49.6	75	26	47	5.9	3.0	2.4	4.7	126	144	390	58	.075	.207	60	20	570	32	51	55.7
1245		9.5	+8	55.4	.0038	50.5	71	34	61	7.8	3.6	3.0	7.0	97	102	1527	342	.091	.284	180+	17	52	195	58	85.8
1311	100% new rags; No. 1 white shirt cuttings	5.5	+8	55.2	.0039	48.9	80	26	47	5.8	3.7	3.4	6.2	117	117	811	124	.062	.203	68	43	13	225	7	73.8
1310		8.5	+8	55.4	.0035	54.6	79	29	52	6.0	3.9	3.3	7.4	95	100	656	180	.079	.288	180+	40	41	472	20	90.2
1308	100% old rags;	3.5	+8	54.3	.0038	49.3	85	18	33	3.8	2.8	3.4	4.8	57	55	16	13	.066	.151	43	45	129	83	10	76.3
1307	66⅔% No. 1 old white,	5.5	+8	57.6	.0042	47.4	85	22	38	4.3	3.1	3.1	4.9	75	71	43	28	.060	.153	43	36	89	146	11	74.7
1306	33⅓% twos & blues	8.5	+8	56.0	.0040	48.4	86	20	36	4.7	3.3	3.4	5.1	63	62	26	28	.069	.177	60	38	58	184	11	83.6
1312	50% old rags	1.5	+8	54.3	.0038	49.4	83	21	39	4.7	2.4	2.7	4.3	80	90	170	34	.070	.188	53	45	222	69	16	61.8
1313	50% sulphite wood pulp	5.5	+8	54.3	.0038	49.4	81	24	44	5.4	2.9	2.4	5.6	83	87	297	71	.064	.199	65	47	107	124	15	70.9
1314		9.5	+8	54.9	.0035	54.2	79	27	49	6.2	3.4	3.3	7.1	65	68	341	89	.079	.252	160	55	24	274	20	95.6
1339	100% sulphite wood pulp with 15% filler (clay) added	5.5	+8	55.0	.0035	54.3	84	11	20	3.5	1.8	2.4	3.0	130	128	18	9	.058	.179	45	28	580	40	25	40.8
1340		9.5	+8	57.6	.0034	58.5	82	19	33	5.2	2.3	2.2	4.7	92	118	174	29	.067	.259	180+	36	91	120	24	65.5

[1] All physical tests were made under conditions of 65% relative humidity and 70° F.

Papermaking Equipment

The paper mill at the Bureau is provided with complete semicommercial equipment which is adapted to the experimental manufacture of paper under conditions simulating those of commercial manufacture. Descriptions and photographs of the equipment are contained in previous publications *(2, 3, 4)*. The equipment used in this investigation was essentially as follows: a 50-pound beater with copper-lined tub and manganese-bronze bars and plate, and equipped with one washing cylinder; a jordan refiner with bars of bronze and steel alloy: a 4-plate, flat screen; and a 29-inch fourdrinier papermaking machine with a wire 33 feet in length, two presses, nine 15-inch drivers, a calender stack of seven rolls, and a reel.

Papermaking Raw Materials

Three commercial grades of rags were used, new white shirt cuttings, and two grades of old rags—old white shirt cuttings and "twos and blues." Half-stuff pulps were prepared from these rags by the conventional methods of cooking, bleaching, and beating. The properties of the pulps are given in Table I. The sulphite wood pulp included in the table is the pulp used in the rag-sulphite mixtures and in the sulphite papers made in the previous work, data for which are included in this paper for comparison.

Manufacture and Testing

1. Beating Practice and Machine Operation

A series of papers was made from each selected fiber furnish with controlled variations in the beating. The procedure followed in furnishing the stock to the beater, except as otherwise noted, was as follows. The beater tub was partially filled with water, the pulp was added, and then sufficient water to obtain the desired concentration. The time required for furnishing was approximately 15 minutes. Data on the beating intervals, beater-roll settings, jordan settings, freeness of the stock at the completion of the beatings and at the headbox, the distance the water was carried beyond the second slice on the paper machine wire and the shrinkage in width while drying are shown in Table II. The position of the beater roll is expressed as the number of turns above (+) or below (−) zero setting, which is the point of contact between the roll and the bedplate. One turn moves the roll 0.008 inch.

The freeness results in Table II were obtained with a Williams precision freeness tester. This instrument consists of a graduated glass cylinder placed above a metal cone having a valve at the bottom. A No. 80 wire screen forms the bottom of the cylinder. To determine the freeness of stock, the apparatus is filled with tap water to the zero mark which is slightly above the wire. One liter of the stock to be tested is poured into the cylinder, the valve is opened, and the time required for 1000 ml. of water to drain from the instrument is noted. Two sets of values, distinguished by the letters *A* and *B*, are reported. For the *A* values, samples containing 3 grams of dry stock per 1000 ml. were added to the instrument, whereas the values for *B* are for samples with actual concentrations in the cylinder of 3 grams of dry stock per 1000 ml. of mixture.

Fifty pounds of pulp was furnished to the beater in each instance. The beaten stock was dropped to a chest and pumped in a continuous stream through the stuff box and jordan to the paper machine without the use of a machine chest. The stuff box was of the conventional regulating-box type, having a constant head over an adjustable orifice. Screen plates with 0.018 inch slots were used. The stock was maintained at 90 ± 2°F. at the headbox. Every effort was made to keep the entire machine operation the same for all of the runs, so that all of the differences found in the properties of the papers could be definitely ascribed to the controlled variations in beating.

2. Testing

All the physical and chemical tests of the pulps and papers were made by the TAPPI methods except the following for which no official methods were available.

The bond test was that of Sutermeister and Osgood. *(5)* This test is essentially one of measuring the force required to split paper when the stress acts perpendicularly to its surface.

The degree of curl was determined by the Carson *(6)* method, which measures the maximum angle of curl of a specimen when one side is in contact with water.

Smoothness was determined with the Bekk *(7)* instrument, and permeability to air was measured with a Carson precision permeability tester *(8)* which measures the rate of air flow through the paper per unit of area with a pressure difference of 1 g/cm².

The physical tests were made in an atmosphere of 65% R. H. and 70°F. because those conditions were standard when the study was initiated and they were used for the remainder of the study to keep all results comparable.

Description of Experimental Papers

Papers were made with fibers from: new rags; old rags; 50% old rags and 50% sulphite wood pulp; and sulphite wood pulp with 15% of filler (clay) added. The minimum, medium, and maximum beating treatments of 1½, 5½, and 9½ hours, respectively, as used on wood-fiber papers reported in the previous paper were followed except that for the all-rag papers 3½ hours was selected as the minimum beating interval and 8½ hours as the maximum. The jordan was used as a mixer only.

The properties of the papers obtained from each furnish by different degrees of beating are contained

TABLE I.—CHEMICAL CHARACTERISTICS OF FIBROUS MATERIALS USED IN EXPERIMENTAL MANUFACTURE OF OFFSET PAPERS

Fibrous material	Alpha-cellulose,[1] %	Beta-cellulose,[1] %	Gamma-cellulose,[1] %	Pentosans, %	Copper number	Ash,[2] %	Resins,[2] %	Acidity of pulp (glass electrode method): Cold water extraction, pH	Acidity of pulp (glass electrode method): Hot water extraction, pH
Sulphite wood pulp	84.8	1.8	13.4	2.8	2.0	0.2	0.3	5.9	5.5
Half-stuff from new white shirt cuttings	92.9	5.9	1.2	...	.4	.1	.2	6.5	6.6
Half-stuff from old white shirt cuttings	89.8	9.1	1.1	...	.3	.2	.2	6.5	6.6
Half-stuff from old "twos & blues"	90.5	8.8	0.7	...	.4	.2	.4	6.7	6.7
Soda wood pulp	67.5	28.8	3.7	15.4	3.2	.7	.2	8.6	7.4

[1] Based on total cellulose.
[2] On moisture-free basis.

in Table III. Included in this table are data on three sulphite papers made with minimum, medium, and maximum beating. These papers were reported in the previous publication *(1)* and are repeated here to facilitate comparison. Papers 1243, 1244, and 1245 are considered representative for sulphite papers made with different degrees of beating.

Interpretation and Discussion of Data

Relationships between some of the important properties of the finished papers are shown in Figs. 1, 2, and 3. In these figures, the scales are so arranged that the data for the various properties are roughly comparable irrespective of their absolute values. For the properties for which low values are desirable, the scales are inverted so that, in all instances, a relatively high position on the scale indicates a high relative quality. The division into three classes is for ease of comparison and is strictly arbitrary.

Figures 1 and 2 show graphically the comparative properties of papers made from different fiber furnishes with like beating treatments. The beating for all papers shown in Fig. 1 was medium and for those in Fig. 2 maximum. The effects of beating on the properties of papers made from sulphite and from old rags are shown in direct comparison in Fig. 3. The chart shows graphically how the two kinds of fibers respond differently to beating. With continued beating, the sulphite pulp develops high strength comparatively fast. However, the increased strength is accompanied by obvious effects of hydration, namely, increased expansivity, loss of opacity, and increased tendency to curl. The old rag fibers show little hydration and apparently can be beaten to obtain the ultimate in formation and finish without the undesirable effects of hydration so apparent in the sulphite papers. The relative overall effects of beating are shown in table 4. Here the papers included in Figs. 1, 2, and 3 are graded by an arbitrary scale of values, allowing 12½, 8, or 4% for each property for Classes 1, II, and III respectively, so that a paper in Class I for all properties would obtain a rating of 100%.

TABLE IV.—RATINGS OF PAPERS IN FIGS. 1 AND 2

Fiber Furnish	Rating Values: Minimum beating, %	Medium beating, %	Maximum beating, %
Sulphite wood fiber.....	78.0	73.5	57.5
New rags	...	78.0	65.5
Old rags	78.5	78.5	78.5
50% sulphite—50% old rags	82.0	82.0	57.5
* 50% sulphite—50% soda..	74.5 *	74.0 *	73.5 *
Sulphite + 15% clay filler.	...	70.0	65.0

* Data from Research Paper RP1455.

In the work previously reported for wood pulps, it was pointed out that a paper made of a mixture of wood pulps usually had a folding endurance little above that of the weaker pulp. That this did not hold for mixtures of sulphite wood pulp and old rags is indicated by the limited data reported in Fig. 4. The folding endurance of these mixtures approached the average for papers made from the individual pulps.

A relationship is known to exist between the amount of gel formed in beating or so-called hydra-

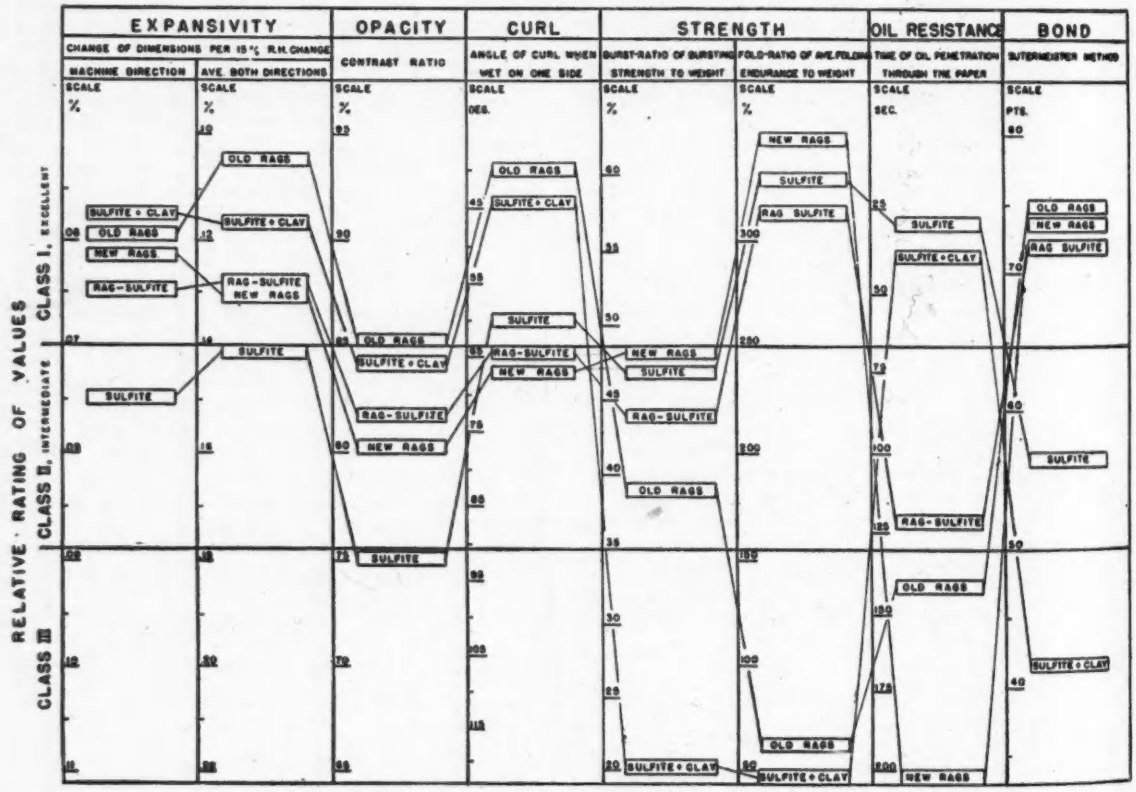

FIG. 1

Relative Properties of Papers Made with Medium Degree of Beating from Different Fiber Furnishes

tion of wood pulp and the bond strength of the finished papers. This is because the gel is a cementing substance. However, in the beating of cotton-rag fibers, comparatively little gel is formed. Here, the beating frays the ends of the fibers into fibrils which become interlaced in the formation of the paper to provide the bond strength without cementing gel. There is no known method for measuring directly the gel or the proportion of the strength of a sheet that is derived from the fraying of the fibers. However, there is evidence to indicate that excessive hydration is associated with high expansion and Fig. 5 will be of interest in this connection. Here the relationships between bond strength and expansion are shown. It will be noted that, in general, the ration of expansion to bond strength is appreciably higher for the wood fiber papers than for the rag-fiber papers which hydrate much less.

Selection of Offset Papers for War Maps

Most of the great quantity of maps required for military purposes are printed by offset lithographic process. Hence, it is of interest to consider the properties of offset papers with reference to their use in war maps. The performance of these maps is so important that printing quality can be regarded as secondary. Papers that are not satisfactory in the field should be eliminated from consideration despite possible excellent lithographic quality. From a consideration of some of the uses of maps, it is believed that the base paper should have: low expansion so that maps will remain reasonably true to scale; relatively good resistance to tearing and surface abrasion, particularly when wet; flexibility to fold repeatedly without breaking; good writing quality for marking on with ink or pencil; and low gloss, to permit reading in bright sunlight. In addition, the paper must give sufficient contrast with map colors for legibility under illumination of very low intensity, as candlelight.

Tendency to form deep creases when sharply folded or to retain permanent curl after rolling are objectionable characteristics.

Scale distortion resulting from humidity changes in the field are unavoidable, but they can be kept at the minimum by using a paper with low expansion. If a map is printed true to scale in an air-conditioned plant at 50% R. H. it will be subject to a maximum humidity variation of 50% plus or minus. Hence, theoretically, the expansion of the paper for a R. H. change of about 50% should be not greater than the permissible scale error. For example, let us assume 60 yards in a range of 15,000 yards to be the maximum probable error in artillery firing practice. Expansion or contraction of the paper map of 0.5% would cause a scale error greater than the error in firing.

Thus a paper may have expansivity low enough for obtaining reasonably good register in printing and yet produce scale errors in the field due to distortion. The expansion data in Table V were obtained on map papers that gave no serious register difficulties yet the possibility of scale error, unless corrections are applied to measurements, are apparent. In an atmosphere of 95% R. H. the average expansion in the cross direction would be 0.72% for an error of 108 yards in 15,000.

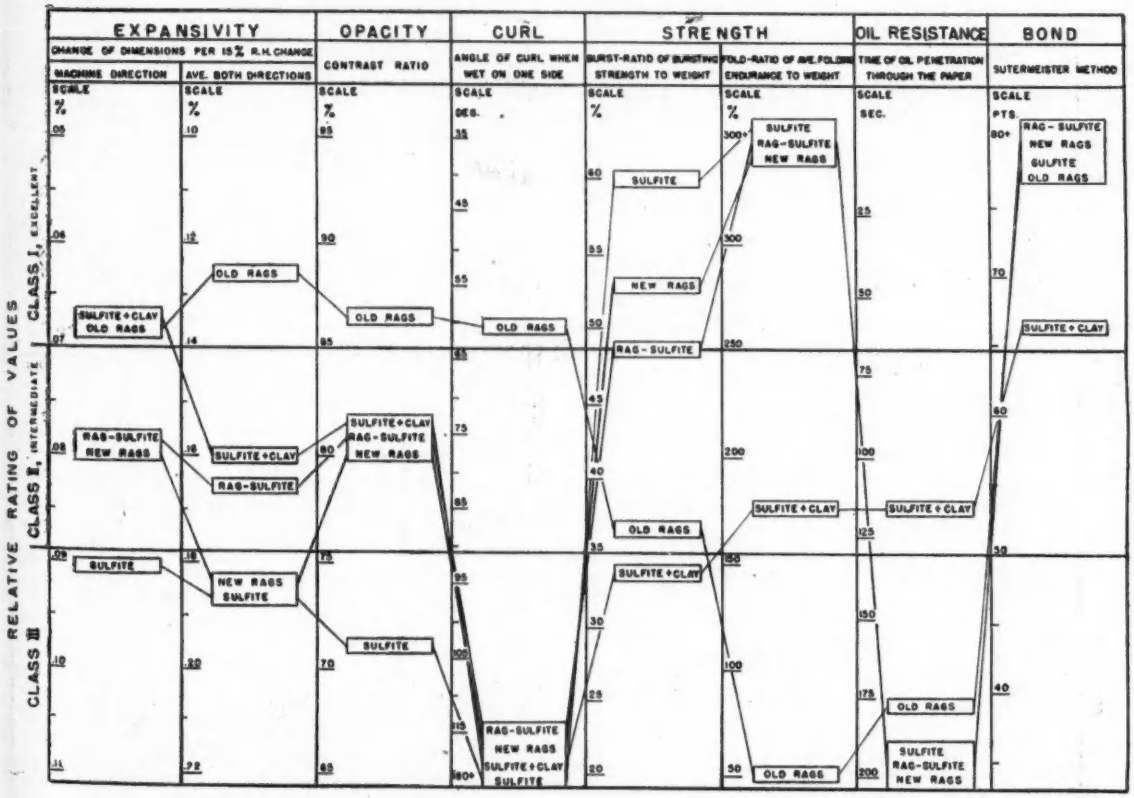

FIG. 2

Relative Properties of Papers Made with Maximum Degree of Beating from Different Fiber Furnishes

TABLE V.—EXPANSION OF SOME COMMERCIAL MAP PAPERS

Paper No.	1	2	3	4	5	Ave.
Expansion per 15% R.H. change, %						
Machine	0.05	0.06	0.07	0.07	0.08	0.065
Cross	0.30	0.26	0.20	0.22	0.23	0.24

Conclusions

The rag fibers, particularly those from old rags, responded quite differently to beating than strong wood fibers. With the former, continued beating to develop strength, formation, and finish was not accompanied by adverse effects on expansion as was previously found to be true of sulphite and sulphate fibers.

The expansion per unit of bond strength of the sheet was appreciably lower for the rag-fiber papers than for wood fiber papers.

In the production of and use of maps, hygroexpansion of the paper is potentially more serious as a cause of scale error than as a cause of misregister in printing.

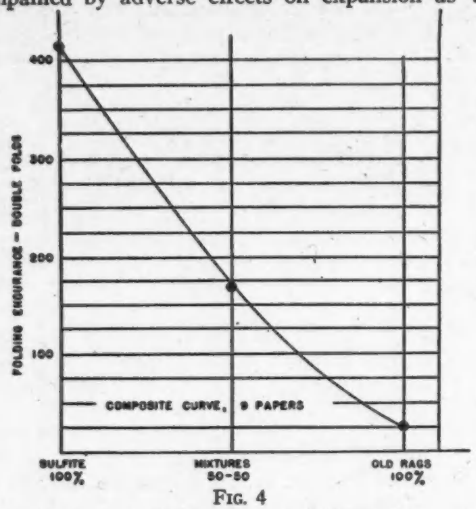

FIG. 4

Relationship between Fiber Content and Folding Endurance of Sulphite Wood Fiber, Rag, and Sulphite-Rag Papers

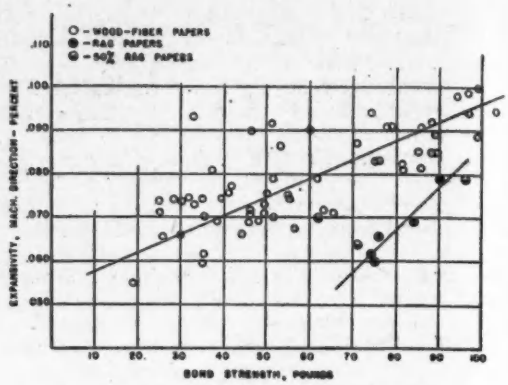

FIG. 5

Relationship between Bond Strength and Expansion of Papers

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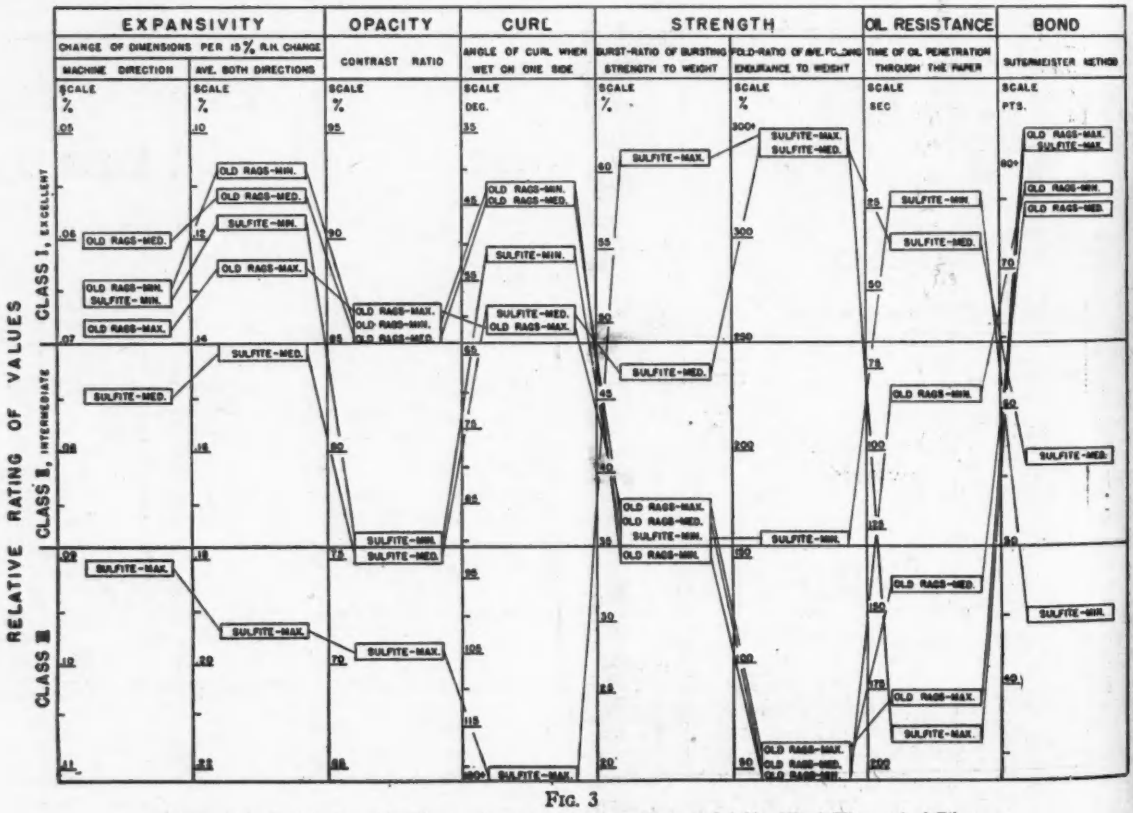

FIG. 3

Relative Effects of Degree of Beating on Properties of Papers Made of Sulphite Wood Fiber and of Fibers from Old Rags

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New York Paper and Pulp Market Review

WPB Orders 5 Per Cent Cut in Use of Newsprint on October 1— Short Pulpwood Supply Threatens to Create Tight Wood Pulp Market — Cotton Cuttings Active — Paper Stock Market Strong.

Office of the PAPER TRADE JOURNAL,
Wednesday, September 22, 1943.

Wholesale orders for paper continue upward and some grades of kraft and sulphite papers are in tight supply, according to some of the current reports received from many manufacturers' representatives, jobbers, and general paper merchants.

The 5% cut in newsprint paper effective October 1 appears to be temporary, as the consumption of newsprint is in excess of production and the WPB foresees less newsprint available in 1944 than was consumed in 1943.

In other lines, the abnormally high demand for almost all paper and paper products, creates doubt if the supply of pulpwood available will be sufficient for even the more essential civilian needs. The military requirements will, of course, be met regardless of other needs.

Some price adjustments have been allowed by the OPA and while other changes will likely be made from time to time to adjust inequitable "price squeezes," no important price advances are expected under the controlled economy now in effect.

The index of general business activity for the week ended September 11 rose to 143.6, from 140.8 for the previous week, compared with 132.1 for the corresponding week last year. The index of paper board production was 147.0, compared with 143.7 for the previous week, and with 118.5 for the corresponding week last year.

Paper production for the week ended September 11 was estimated at 75.7%, compared with 70.3% for 1942, with 104.2% for 1941, with 84.0% for 1940, and with 91.8% for the corresponding week for 1939.

Paper board production for the week ended September 11 was 83.0%, compared with 65.0% for 1942, with 98.0% for 1941, with 76.0% for 1940, and with 79.0% for the corresponding week for 1939.

The index of manufacturers' shipments for July, the latest report of the Department of Commerce, for all industries, was 248, compared with 207 for July, 1942. The total index for durable goods was 347 for July, compared with 264 for July, 1942; non-durable goods, 170 for July, compared with 163 for July, 1942. The index for paper and allied products was 154 for July, 1943, compared with 126 for July, 1942, and with a high mark of 163 for June, 1943.

Pulpwood

The American and British pulp and paper committee has expressed the opinion, according to the WPB, that the severe shortage of pulpwood should dictate economy of use. To meet the delivery schedule, Canadian mills would have to further reduce inventories of pulpwood and wood pulp to a minimum by next spring.

Wood Pulp

No improvement in the prospect of an adequate supply of wood pulp to meet present estimated requirements in the future, has been reported. If production declines much further, a more strict control of distribution by the WPB would be necessary. The present status is generally considered to cause less disruption of paper production schedules, and the adoption of a priority plan would likely create the most hardship. Outright rationing is not thought to be applicable to the industry.

Rags

Mill demand for new cotton cuttings is heavy. The colored grades are in strongest demand at maximum prices. Buying of new whites is reported moderately active, at a little under ceiling prices.

Mill buying of roofing rags is steady and in relatively heavy volume at ceiling prices.

Old Rope and Bagging

Military requirements for old cordage fiber is so heavy that the Conservation Division of the WPB has appointed Edwin G. Roos, of the Plymouth Cordage Company, to prepare a campaign for the salvaging of these critical materials.

Trading in old bagging is slow, with all prices soft and nominal.

Old Waste Paper

The old waste paper market is active under heavy mill buying. Supplies are still reported inadequate to meet demand and this market is strong. Prices are maintained at ceiling levels.

Twine

The scarcity of hard fiber twine and cordage for civilian use, is indicated in the increasing use of paper twine, which is about half as strong. Paper binder twine for bundling grain has been quite satisfactory, as it has good strength and knots well in the grain binder.

Warren Pump Co. Gets "E" Award

The Warren Steam Pump Company, Warren, Mass., was honored this month when it received the Army-Navy "E" Production Award. H. Ward Hathaway, manager of the Federal and Marine Department of the company was master of ceremonies. Employees serving in the Massachusetts State Guard served as color guard at the raising of the flag and music was furnished by the Worcester Brass Band.

Greetings from the Commonwealth of Massachusetts were extended by Leverett Saltonstall, Governor of Massachusetts. Presentation of the Army-Navy production award was made by Rear Admiral Wat T. Cluverius, U. S. Navy (retired). The award was accepted by George R. Rowland, president of the Warren Steam Pump Company.

Presentation of "E" pins was made by Brigadier General Thomas E. Troland, Commanding Officer, Security District No. 5, Providence, R. I. The acceptance of "E" pins was made by John B. Gould, with a record of 40 years as an employee of the company.

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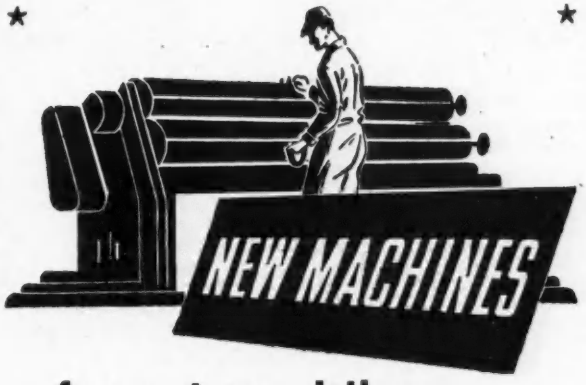

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MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, September 22, 1943.

BLANC FIXE—Quotations on blanc fixe continue unchanged. Demand is reported fair. The current price on the pulp is $40 per ton, in barrels, at works. The powder is quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—The market for bleaching powder is active. Quotations continue unchanged. Current prices range from $2.50 to $3.10 per 100 pounds, in drums, car lots, at works.

CASEIN—OPA maximum prices on processes acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound; f.o.b. shipping point.

CAUSTIC SODA—The market situation in caustic soda continues to be reported tight. Quotations are firm and unchanged. The current price on solid caustic soda is $2.30 per 100 pounds. Flake and ground are quoted at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are reported unchanged for the week. Demand is fair. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported china clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Supply situation is reported easier this week, with prices continuing unchanged. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b. works.

ROSIN—Prices on some grades of rosin are lower this week. "G" gum rosin is currently quoted at $3.93 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $3.88 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $4.12 per 100 pounds, f.o.b. works.

SALT CAKE—Quotations on salt cake continue to be reported unchanged. Demand is moderate for the week. Domestic salt cake is currently quoted at $15 per ton, in bulk; chrome cake at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—Supply situation is reported tight at this date. Prices continue to conform to prevailing quotations. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Corn and corn products continue in tight supply. Prices are reported unchanged. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All quotations in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA — Market for the commerchial grades is relatively easp. Iron free is reported in limited supply. All prices continue unchanged. The commercial grades of sulphate of alumina are quoted at $1.15 to $1.25 per 100 pounds; iron free is quoted at $2.35 per 100 pounds. All in bags, car lots, f.o.b. works.

SULPHUR — Quotations on sulphur continue unchanged. Demand is reported heavy and steady this week. Annual contracts are currently quoted at $16 per long ton, f.o.b. mines. The contract price at Gulf Ports is unchanged at $17.50 per long ton.

TALC—Demand for talc is reported moderate for the current week. Prices continue unchanged. Domestic talc is currently quoted at from $16 to $21 per ton, at mines.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—			
Roll, contract	*$54.00	@	—
Sheets	62.00	"	—
* OPA Maximum Price.			
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag	*4.375	"	—
* OPA Manufacturers' Prices.			
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.60	"	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.	5.75	"	6.00
Boards, per ton—			
News	*48.00	@	—
Chip	*45.00	"	—
Sgl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.35@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@	$15.50
No. 2 Glossy Coated	12.40	"	14.00
No. 3 Glossy Coated	11.60	"	13.25
No. 4 Glossy Coated	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.	9.35	"	10.75
A Grade S. & S. C.	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. & S. C.	9.10	"	10.50
C Grade E. F.	8.55	"	9.75
C Grade S. & S. C.	8.80	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C.	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight, Not Exceeding OPA Allowances.

Bl. Softwood Sulphite	$76.00		
Unbl. Softwood Sulphite	65.00	@	66.00
Bl. Hardwood Sulphite	73.50		
Unbl. Hardwood Sulphite	63.50		
Bl. Mitscherlich	81.00		
Unbl. Mitscherlich	72.00	@	82.00
N. Bleached Sulphate	86.00		
S. Bleached Sulphate	79.00		
N. Semi-Bleached Sulphate	82.00		
S. Semi-Bleached Sulphate	75.00		
N. Unbl. Sulphate	73.00		
S. Unbl. Sulphate	63.50		
Bl. Soda	66.00		
Unbl. Soda	62.00		
Groundwood	46.00		

Transportation Allowances Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.25*
Silesias No. 1	—	"	5.75*
New Unbleached	6.75	"	7.50*
Blue Overall	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

* OPA Maximum Prices.

W. & L. E. GURLEY

Established 1845

Manufacturers of Instruments for Paper and Textile Testing

(Porosity — Smoothness — Softness — Stiffness — Curl — Shrinkage — Sizing)

Engineering and Surveying
Hydraulic Engineering
Aeronautical Navigation
Meteorology
Standard Precision Weights and Measures

Catalogs sent on request

TROY, N. Y., U. S. A.

WORKING for LIBERTY

AFTER 115 YEARS

of faithful service to the paper industry, we have temporarily ceased manufacturing new equipment and are devoting the greater part of our resources to the war effort. With the proper authority, however, you can still obtain replacements.

THE SMITH & WINCHESTER
MANUFACTURING COMPANY
Plant and Offices at South Windham, Connecticut

SCREENS of Perforated Metal

The Harrington & King Perforating Co.

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The Trade-Mark of RELIABLE FELTS

The Waterbury Felt Co.

SKANEATELES FALLS, N. Y.

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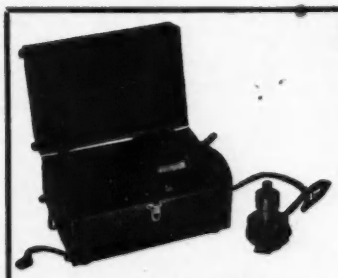
New York, N. Y.

AMORPHOUS WAXES
Melting Points 120° F. to 205° F.

For the Manufacture of

LAMINATING PAPER . . GLASSINES . . WATER-PROOFING . . GREASE PROOFING . . EXTENDERS FOR PARAFFIN, FOOD CONTAINERS, CONTAINER LININGS, ADHESIVENESS AND PROTECTIVE COATING.

PHOTOVOLT



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REFLECTION METER

for measurement of
Brightness
Opacity
Gloss
Color

A universal instrument for photoelectric measurements in the paper industry. Built for precision, simple to operate.

Write for literature.

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Builder of High Speed Bag Machines

Grocery, Duplex, Coffee, Flour, Cellophane Satchel Bottom, Tuber & Bottomers Automatic Compensating Device.

KIEL **WISCONSIN**

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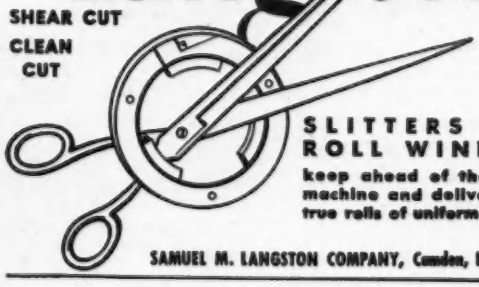
SHEAR CUT
CLEAN CUT



SLITTERS AND ROLL WINDERS

keep ahead of the paper machine and deliver solid, true rolls of uniform density.

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INDUSTRIAL **TYCOL** OILS-GREASES

A COMPLETE LINE
OF TYCOL LUBRICANTS SCIENTIFICALLY ENGINEERED FOR EVERY INDUSTRIAL USE

Tide Water Associated Oil Co.
Eastern Division
17 Battery Place, New York, N. Y.

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.25	@	4.35
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	5.00
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Mixed Books	.85	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	.85	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17½	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila		"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1	.07½	@	.07½
New White No. 2	.04½	"	.05
Light Silesias	.04½	"	.04¾
Silesias, No. 1	.04	"	.04¼
Black Silesias, soft	.03¾	"	.04
New Unbleached	.07¼	"	.07½
Washable Prints	.03¾	"	.03½
Washable No. 1	.02	"	.02¼
Blue Overall	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales	.03¼	"	.03½
New Black Soft	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.	.03	"	.03¼
No. 2 Mixed	.02½	"	.02½
Corduroy	.01¾	"	.02¼
New Canvas	.04¾	"	.05¼
New Black Mixed	—	"	.02½

Domestic Rags (Old)

White No. 1—Repacked	3.80	"	—
White No. 2—Repacked	2.90	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
Sisal Rope	3.75	"	—
Mixed	1.00	"	1.50
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—
Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.26	"	—
Old Corrugated Containers	1.15	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	3.75	@	4.00
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	1.35	"	1.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.60	"	3.85
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Ponches	4.65	"	4.87½
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Bagging	1.35	"	—

* OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¼	"	.05
New White No 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06½
Underwear Cutters, Bleached	.06¾	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached Blue Cheviots	.06½	"	.06¾
	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03½
New Canvas	.06¼	"	.06¾
B. V. D. Cuttings	.06¾	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—
No. 2	1.45	"	—
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A	1.35	"	—
Quality B	1.20	"	—
Quality C	.95	"	—
* Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—